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Industrialisation, Politics, and Banking Instability in Late Imperial Russia

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Industrialisation, Politics, and Banking Instability in Late Imperial Russia

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Declaration

I certify that the thesis I have presented for examination for the PhD degree at Queen's University Belfast is solely my own work other than where I have clearly indicated that it is the work of others.

Abstract of thesis

This thesis examines industrialisation, politics, banking and social instability in late Imperial Russia to address three central issues in economics and finance: (1) the role of government in effecting the stability of the banking sector; (2) the role of government in preserving banking and economic stability during an episode of financial distress; and (3) the role of government, and of other key groups in the economy, in the redistribution of income and wealth during and following a financial crisis.

My dissertation traces a critical period in Russia's history: 1893 to 1905. The early-to-mid-1890s were characterised by rapid industrial growth, which was driven by protectionist policies and the state procurement of industrial products. The period 1899-1902 saw a severe financial and industrial crisis. The subsequent period 1903-1905 was marked by widespread labour strikes at industrial enterprises, a war with Japan, and a nation-wide revolution in 1905. In this twelve-year window, Russia went from robust and rapid economic growth to a financial crisis and then to social unrest and political reforms.

My main findings are as follows. First, the national development policies of the 1890s incentivised, although did not compel, commercial banks to finance industrialisation. When industry experienced a slowdown during the financial crisis of 1899-1902, banks sustained devastating losses. This evidence suggests that national development policies had a destabilizing impact on bank performance.

Second, in response to the financial crisis, the State Bank, a quasi-central bank of Russia, implemented a multifaceted approach to crisis containment. I find that this multifaceted approach was successful in maintaining price, employment, and financial stability. The evidence also suggests that the State Bank's crisis response was identical to the types of policies employed over a century later by the Federal Reserve during the 2007-09 financial crisis.

Third, in response to the financial crisis, the Russian government, along-side privately-owned industry, transferred income and wealth from ordinary workers to industrialists and investors. The evidence also suggests that industry forced the labour force to either work longer hours or more intensively. The distributional effect appears to have contributed to the occurrence of labour strikes, and ultimately to the 1905 revolution.

Acknowledgements

The present work began as an attempt to answer a question that my supervisor, John Turner, had posed in this book *Banking in Crisis*: can government policies lead to bank distress? In addition to inspiring the first chapter of my dissertation and using his experience to guide me through the uncharted waters of Russian economic history, John has been undeviatingly supportive throughout my studies.

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CHAPTER 1

Introduction

1.1. The role of the government

The first issue I investigate in this dissertation is the role of state policies of the 1890s in bank performance during the Russian financial crisis at the turn of the 19th century. The financial crisis of 1899-1902 was characterised by bank distress, including bank failures, stock market downturn, and a shortage of capital. The crisis interrupted the rapid industrialisation that Russia was undergoing in the 1890s. Credit shortages in Europe forced foreign investors to curtail investments in Russian government bonds and securities of industrial enterprises. This led to major losses among heavy industrial companies, as private and later state demand for their products fell. Regulatory mark-to-market requirements forced banks to register large losses on their investment portfolios (Gindin, 1950). From official bank audits, we know that key banks were practically bankrupt or on the verge of collapse in the early stages of the crisis (Bovykin, 1984). The failure of key banks would have put an end to Russia's rapid industrialisation, as banks supplied over half of all industrial finance (Bovykin, 1967).

There has been a long-standing literature, ranging from Hammond (1957) to Calomiris & Haber (2014) to Turner (2014) that has argued that the government can contribute to, and even, originate banking crises. In Chapter 2, I combine historical evidence with a quantitative approach to show that the Russian national policies of the 1890s, targeted at the development of industry, enticed banks to over-invest in industrial enterprises, leading to disastrous bank losses during the crisis of 1899-1902. The main contribution of this chapter is twofold: (1) where previous scholarship has largely remained descriptive, I explicitly engage with economic theories in an attempt to

uncover causal connections between different factors; and (2) provide quantitative evidence to a debate that has thus far come in the form of narrative evidence.

I use two hand-collected datasets to address my question in Chapter 2. One dataset is on banks' financial performance from *The Consolidated Balance Sheets* (Golubev, 1899-1902a) and *Russian Banks* (Golubev, 1899b). The other consists of the names of bank board members, government officials, and corporate board members, collected from *Address-Calendar* (1898) and *Russian Banks* (Golubev, 1899b). I also gather narrative evidence from secondary sources to identify what type of information relating to industrialisation policies passed from officials and corporate board members to bank board members. I find that the banks that experienced greater distress in the crisis had more personal connections to government officials who were close to the epicentre of policymaking. Additionally, the banks that suffered greater distress had more personal ties to companies that had been highly stimulated by state policies to expand production. Taken together, these two findings point to a destabilising impact of national development policies on bank performance.

The second question I address in my dissertation is a topic of a recent debate relating to how a central bank should resolve a major financial crisis. Some scholars have argued for limiting a central bank's toolkit to a classical lender-of-last-resort (Taylor, 2014), as initially prescribed by Bagehot (1873). Others have called for a more activist central bank approach to crisis management (Bernanke, 2015).

In Chapter 3, I add a historical perspective to this debate by analysing the response employed by the State Bank, the quasi-central bank of Russia, in the systemic crisis of 1899-1902. To quantify the State Bank's policy actions, I hand-collected financial statements of the State Bank from the Russian State Library. To understand the motivation behind the State Bank's policy measures, I gathered records of the State

Bank's policy decisions from the Russian State Historical Archive. This methodological approach helps me understand the reasons behind the State Bank's actions.

I find that the State Bank departed from the Bagehotian doctrine of liquidity provision early on in the financial crisis. Instead the State Bank employed a multifaceted approach to resolving the crisis, including liquidity provision to financial institutions, liquidity provision to individual stock-market investors, acquisition of securities from investors, lending to non-financial institutions, and emergency lending to specific financial institutions.

This approach allowed the State Bank to maintain price, employment, and financial stability. The evidence also suggests that the State Bank's approach was equivalent to the types of policies employed over a century later by the Federal Reserve during the 2007-2009 financial crisis. The findings imply that it is worthwhile for a central bank to have multiple tools at its disposal to combat a crisis.

The third question I examine in this dissertation is the mechanisms through which financial crises can lead to social unrest. Existing literature is divided on this topic. One side has claimed that financial and economic crises directly depreciate households' income and wealth, compelling them to seek changes on the streets or at the polls (Brender & Drazen, 2008; De Bromhead et al., 2013; Lindgren & Vernby, 2016). An alternative and minority view has been that the way the government responds to financial distress has a redistributive effect on households' income and wealth (Halac & Schmukler, 2004; Stiglitz, 2013), again compelling households to seek changes.

In Chapter 4, I ask two questions: (1) what was the immediate effect of the financial crisis of 1899-1902 on key participants in the economy – that is banks, industry, and the government, and (2) how did these participants respond to the crisis and in the process affect the fourth key group in the economy: the working class? To answer these questions, I employ aggregate-level data on the economic performance of

the aforementioned participants in the economy, which I collected from a series of yearbooks published by the Russian Ministry of Finance. I also collected economic and non-economic data pertaining to the aforementioned participants from a variety of secondary sources. I supplement these quantitative data with a historical narrative describing how these four groups of participants responded to the crisis of 1899-1902.

I find that in response to the financial crisis of 1899-1902, the government attempted to shield industry from losses. As a result, it transferred wealth from ordinary workers to industrialists and shareholders. The recipients of transfers weathered the crisis well and profited during the recovery, whereas workers' wages and wealth stagnated. I also find that industry, in its own attempt to sustain the high profits of the 1890s, compelled the labour force to either work longer hours, or to work more intensively. Taken together, the findings suggest that it was the response to the crisis not only by the government, but also by other key participants in the economy, such as industry, that exacerbated the material and physical well-being of workers. The extant literature has established that workers' poor working and living conditions were the central reason behind the occurrence of labour strikes (Korelin et al., 2005). In light of this fact, my findings suggest that the financial crisis, and the policies used to combat it, contributed to worker unrest, and ultimately to the 1905 revolution.

1.2. Contribution to Russian economic history

Scholarship in Russian economic history is abundant with historical studies that are not cliometric in nature. These studies do not explicitly use economic theory and quantitative methods to draw causal connections between different variables. My contribution is to build on these works and add a quantitative, economic perspective to the historiography. However, I do so in a way that remains sensitive to the history. I am of the view that good cliometrics requires the researcher to go beyond the statistical methods. This may

require the use of non-quantitative evidence, such as archival material and secondary sources.

The availability of vast secondary source material allowed me to pool together pieces of data and information to construct the picture of the government policies of the 1890s and the impact these policies had on the expansion of industry. For Chapter 2, I also gathered records documenting how the government affected banks' inclination to finance industry. In particular, I found real examples of bankers receiving privileged information on state procurement orders and examples of how bankers acted on this information. This historical foundation, which itself is underpinned by the extensive work of Russian historians, permits me to not merely claim that interlocks between government official and bankers brought distress to banks, but to go beyond interlocks and conclude that it was national development policies that were ultimately responsible for the near-failure of banks.

Piecing together the historical narrative allows me to support Gerschenkron's (1962) arguments that the state was a primary driver of economic development in the 1890s. In particular, Gerschenkron argued that the Russian state replaced weak private sector demand for industrial products with its own procurement. The new narrative also allows me to re-evaluate Gregory's (1991, 1994) view that the Russian state was not a vital force in the industrialisation of the 1890s. Gregory contends that, among other reasons, state expenditures on industrial products, such as military hardware, were too small to were too small to have a meaningful impact on industrial growth.

In many cases, Gerschenkron's arguments are not substantiated with hard data. Whereas Gregory greatly relies on the analyses conducted in the 1960s by historians based outside of Russia. Because the Soviet Union was closed to foreign visitors at that time, these historians had to rely on limited datasets. For these reasons, the claims

presented by both Gerschenkron and Gregory, whether right or wrong, require updated, stronger evidence. Chapter 2 addresses this issue.

My Chapter 3, on the State Bank rescue operations, augments the history of central banking by documenting one of the first episodes in the history of central banking where a substantial and comprehensive multifaceted approach to crisis containment was employed. This is important for historical purposes because it helps us to develop counterfactuals of subsequent crises: had contemporary policy makers in Europe and the United State learned about the State Bank's anti-crisis measures, perhaps the not-so-distant financial panic of 1907 would have been largely mitigated. Indeed, even during the Great Depression, central banks elsewhere did not employ the approach of the State Bank. It was perhaps only the 2008-2009 global financial crisis in which Western central banks and governments used a comprehensive multifaceted approach to crisis containment pioneered by the Russian State Bank.

My Chapter 4, on the distributional effects of the financial crisis of 1899-1902, augments the literature on the causes of the First Russian Revolution of 1905. The central cause of the revolution has been identified as unacceptable living and working conditions of industrial workers. A minority view has argued that the crisis of 1899-1902 and the government's response to the crisis contributed to the revolutionary movement (Gefter 1953, 1955; Gindin, 1950; Lenin, 1963). My evidence adds more weight to view that the crisis response and its distributional consequences contributed to the revolution.

1.3. Methodology and sources

This section discusses the advantages and disadvantages of the methodology and sources used in the chapters. In Chapter 2, I combine a narrative and empirical approaches. In the first part of the chapter, I piece together a historical narrative of what happened in the 1890s, relying on the extensive archival work of Soviet and Russian historians. The

evidence points that the industrialization policies were the root cause of bank distress during the financial crisis of 1899-1902. In the second part of the chapter, I use regression analysis to test the validity of these historical findings. A combination of historical evidence and empirical analysis is a key strength of this chapter's methodology.

On the other hand, because I relate bank distress to national development policies, it is possible that there are many causes other than the industrialisation policies that could have driven banks' investment and lending decisions. I address as many alternative causes as possible, including the government expectation of banks to finance industry, the State Bank's policy towards banks, and the potential existence of rent-seeking between bankers and government officials. Because I address these possible causes using only narrative evidence, the lack of empirical tests in regards to alternative causes is a methodological weakness.

A key strength of the sources used in Chapter 2 is that I am able to put together a historical narrative of the 1890s by relying on extensive secondary literature. I am standing on the shoulders of historians who spent their careers collecting data and information. However, one shortcoming of relying heavily on secondary material is that in many instances the historians summarized primary documents in their own words, which might not precisely reflect the content of original documents.

In Chapter 3, my methodology is to quantify the assistance package and describe each of the State Bank's actions based on financial statement data and the State Bank's annual reports. I then look at macroeconomic and financial variables to identify how successful the banking sector and the broader economy were in weathering the financial crisis of 1899-1902.

It might, however, be argued that this method lacks a deeper empirical analysis. What is needed is a regression analysis that identifies the extent to which the State

Bank's actions, foreign capital, and industry's productivity were each responsible for overcoming the crisis. I believe this method is not essential. That is because using aggregate level data allows me to separate the effect of the above-mentioned factors on the banking sector and the economy. In particular, macro-level data shows that foreign capital dried up and interest rates abroad increased, and thus could not have mitigated the effects of the crisis. From the evidence in Chapter 4, we know that the response to the crisis by industrial companies only prolonged the duration of the crisis. Consumption expenditures of households also did not help alleviate the financial turmoil. Thus, we can rule out these potential determinants. What is left are the rescue actions of the State Bank and fiscal authorities as the only economic players that could make a positive impact. In other words, the lack of statistical analysis is not necessarily a weakness of this chapter's methodology.

The strength of the sources used in Chapter 3 is that the sources mostly come in the form of official documents. The weakness of official documents as a source is that in its annual reports the State Bank tried to make the best impression on the reader by describing in detail the rescue operations that were apparently helpful to the banking sector and profitable to the State Bank, while providing little information on the programmes that apparently resulted in losses to the State Bank. For instance, there is little description of bailouts of individual financial institutions. To fill in the missing information, I had to rely on secondary material written by contemporary analysts.

Chapter 4 employs aggregate-level financial data to show that in the process of overcoming the financial crisis of 1899-1902, the Russian government assisted industry and banks, while imposing a higher economic burden on the working class. I believe the use of macro-level data is appropriate to establish the distributional effects as it is sufficient to know what happened to finances of major economic participants at an aggregate level.

In this chapter, I also try to go beyond documenting the occurrence of the distributional effect, and suggest that there is a link between the redistribution of income and wealth and the occurrence of labour strikes in the years leading up to the Revolution of 1905. To make this point, I rely on aggregate-level data and narrative evidence. The weak point of this method is that it is not possible to establish a causal relationship between financial redistributions and worker strikes. However, I believe that the evidence is sufficient to motivate the need for further empirical research, which I discuss in the end of the chapter.

The strength of the sources used in Chapter 4 is that the data is sufficiently extensive and detailed to establish the occurrence of the distributional effect. However, the data used to trace the impact of industry on workers is not as sound as it does not cover the entire population of workers. For example, when documenting worker injuries, data is available only on mining plants and coal, iron, manganese, and copper mines, which covered only 72 per cent of heavy industry employment.

CHAPTER 2

Government-made bank distress: industrialisation policies and the Russian financial crisis of 1899-1902

2.1. Introduction

In the mid- to late 1890s, the Russian Empire was undergoing exceptional industrial growth. The value of manufactured output rose at an annual rate of nearly ten per cent between 1893 and 1900 (Borodkin, 2011a, 2011c), elevating the country to the fifth largest manufacturing producer in the world (League of Nations, 1945). The state acted as a catalyst for economic growth by procuring industrial products and stimulating industrial companies to expand operations to match constantly-rising state and private sector demand (Gindin, 2007c). Simultaneously, development policies incentivized commercial banks to finance industry, as will be shown throughout the chapter. In 1899, the successful setup between the government, the banking sector, and industry started to come apart due to a sudden drop in the rate of inflow of European capital to Russian government bonds and securities of industrial enterprises. This led to a rapid stock market decline, recession, and disastrous corporate performance – together culminating in overwhelming losses among banks (Bovykin, 1967, 1984). Because banks supplied over half of all financing received by the industrial sector, banking distress put the successes of the 1890s at stake.

What caused the reversal in the robust industrial growth? Among a number of possible causes, one reason offered by the Minister of Finance himself was the state industrialisation policies of the 1890s, which had unduly stimulated heavy industry, leading to its overbuilding and eventual contraction (Gindin, 1996). The purpose of this chapter is to uncover whether, and to what extent, government policies contributed to bank losses in the crisis of 1899-1902. The importance of this enquiry comes from the

fact that the influence of the state on a banking system is often immense and can be negative. When it is negative, banking distress and failure might follow, which, in turn, are likely to lead to the fall in the supply of money (Friedman & Schwartz, 1963) along with other non-monetary effects (Bernanke, 1983; Hall, 2010) that impair aggregate economic activity.

I identify three channels through which the Russian government affected banks' inclination to finance industry and, consequently, banks' financial outcomes. The first channel was information that banks gathered by means of personal connections with government officials and corporate board members. In particular, banks obtained information about the future course of industrialisation policies, such as what industry the government would protect and support, and information about state procurement decisions, such as what factory would receive a lucrative procurement contract. The second channel was the government's expectation of banks to finance the modernisation of industry. Third was the development policy of the State Bank, a quasi-central bank of Russia, by means of which the State Bank provided credit to banks on a constant basis. The focus of this chapter is on the first channel because the other two channels contributed little to the increase in bank financing of industry, as discussed later.

In order to trace the passage of information from the state to the banking sector, I record personal connections, or more formally interlocks, between board members at banks, government officials, and board members at companies.[1] Specifically, a well-informed political interlock is recorded when a bank board member, or his sibling, is part of a group of top government officials who were well-informed – due to being in close contact with the Finance Minister Sergei Witte – about state procurement decisions and the expected trajectory of the industrialisation policies. The Finance Minister Witte was

[1] For lucidity, this chapter refers to a member of a board of directors or a management committee as simply a board member, unless otherwise specified.

at the epicenter of policymaking as he was the architect of the industrialisation policies and the final decision-maker on state procurement contracts (Bovykin, 1967; Shepelev, 1981).

Separately, a heavy industry interlock is recorded when a bank board member is also a board member at a heavy industrial firm, or when the banker's sibling serves in that role. This type of interlock presents an alternative way of tracing the effect of state policies on bank performance. This is because heavy industrial firms were highly reliant on state procurement, which fell during the crisis, leading to industry losses. Moreover, the government itself acknowledged the danger posed by the existence of corporate interlocks. In one of the few corporate laws passed in response to the crisis, authorities prohibited banks' executive board members from serving on corporations' boards (Complete Collection of Laws, 1903). On top of this, I register three additional types of interlocks: to capture bankers' connections with a wider range of government officials and non-financial companies, and to trace connections with competitor banks.

Next, I determine how the presence of government, industrial, and banking connections at each bank affected bank performance during the crisis. Bank distress is measured in the form of (1) net losses banks sustained on investment portfolios over the entire crisis period, and (2) the drop in bank share price over the first year of the crisis, which was the only period throughout the crisis that was chiefly free from direct government intervention in the stock market.

My main finding is that the banks that experienced greater distress during the crisis had more connections to government officials who were well-informed about the industrialisation policies and/or state procurement contacts in the lead-up to the crisis. The inference is that the banks that had been influenced most by these policies exposed themselves financially to heavy industrial companies and, as a result, experienced greater losses.

Additionally, I find that the banks that experienced greater distress during the crisis had more personal connections to heavy industrial companies. The interpretation is that the banks that suffered heavier losses had greater exposure, either via direct loan financing or securities underwriting, to companies most stimulated by state policies. Put together, these two complementary findings indicate a negative effect of national development policies on bank performance during Russia's state-led growth. Aside from this, I find that the relationship between personal ties between competitor banks and bank performance to be inconclusive.

The findings of this chapter add to fours strands of literature. First, the chapter provides empirical evidence in support of a long-standing belief that the government can contribute to, and even originate, banking crises. Research on this subject comes in the form of descriptive evidence and hypotheses (Hammond, 1957; Cameron, 1967; Krugman, 1998; Cassis, 2002; Rajan, 2011; Calomiris & Haber, 2014; Turner, 2014). For example, Calomiris & Haber (2014) argue that the root cause of the 2007-09 financial crisis in the U.S. was the deal struck between banks and government for the provision of loans to unqualified mortgage borrows in exchange for relaxed banking regulation. The unique contribution of this chapter is that it brings together both qualitative evidence and a quantitative approach in order to establish a causal link between government policies and bank distress.

Second, this chapter augments Russian economic history. Gerschenkron advanced a view that the state was the 'agens movens of industrialisation' (Gerschenkron, 1962, p. 20), or the primary driver of economic development, much responsible for the country's economic outcomes. This chapter's research supports Gerschenkron's arguments, and at the same time questions Gregory's (1991, 1994) revisionist view that the Russian state was not a vital player in the industrialisation of the 1890s. Specifically, Gregory contends that, among other reasons, state expenditures on

industrial products, such as military hardware, were too small to have a meaningful impact on industrial growth.

Third, this chapter adds to the literature studying the impact of bankers' personal connections on bank performance. Existing literature has found that political interlocks can have both a negative (Duchin & Sosyura, 2012; Grossman & Imai, 2016) and positive impact (Braun & Raddatz, 2010; Acemoglu et al., 2016) on financial outcomes of banks. This chapter argues that a negative influence is very much a possibility. When it comes to interlocks with non-financial firms, this chapter's research adds to the established view that this type of connections has mostly a negative impact in times of stress (Laeven, 2001; La Porta et al., 2003; Colvin, 2014; Colvin et al., 2015). Lastly, this study contributes to the scarcely-researched topic of personal ties among banks themselves being responsible for both bank profits (Fowler et al., 2014) and losses (Colvin et al., 2015). This chapter's findings in this regard are indeterminate. One element that distinguishes this chapter is that identifies exactly the type of information that passed through interlocks to have the quantified effect. In contrast, nearly all academic articles on interlocks do not go beyond hypothesising why interlocks have the determined effect.[2]

Fourth, this chapter contributes to the literature on the role of bank relationships with industry in economic development of the 19th century. Banks' interlocks with companies brought little tangible benefits during German industrialisation (Fohlin, 1999), yet were essential for economic development of New England (Lamoreaux, 1996), and improved British firms' access to credit in Sheffield (Newton, 1996). This chapter's findings suggest that bank-industry connections played a significant role in the development of Russia's heavy industry.

[2]As an example of such papers, see Acemoglu et al. (2016).

This chapter builds its arguments in the following sequence. Section 2.2 provides the historical setting of the study. Section 2.3 outlines the proximate causes of the crisis. Section 2.4 quantifies the government's role in the expansion of industrial production in the 1890s. Section 2.5 examines the information channel through which the government affected banks' inclination to finance industry. Section 2.6 summarises the two other channels through which the government potentially influenced banks' decisions. Section 2.7 defines the empirical strategy and variables. Sections 2.8 and 2.9 provide empirical results. Section 2.10 concludes.

2.2. Industrialisation in the 1890s

In the 1880s, Russia's share of world manufacturing production was far behind that of other major nations. Whereas the U.K.'s share was 26.6 per cent and France's 8.6 per cent, Russia's was only 3.4 per cent (League of Nations, 1945). In 1893, the newly-appointed Finance Minister, Sergei Witte, introduced new economic policies aimed at rapid industrialisation. The goal was to catch up with the already industrialised countries in Europe and make Russia great again on the world economic, political, and military arena (Gindin, 1957). Witte believed a country based solely on agriculture was at the mercy of 'a quite obvious, unsheltered exploitation of its productive forces' (Gindin, 1957, p. 154) by the already industrialized countries.[3] In fact, the humiliating fiasco in the Crimean War of 1853-1956 and the diplomatic restrictions imposed on Russia at the Congress of Berlin in 1878 vividly showed that economic backwardness and military defeats are closely related (Crisp, 1976).

Along with foreign investors, whose role is discussed in the next section, 39 joint-stock commercial banks financed industrial growth. Banks supplied well over half

[3]Author's translation, as in all other instances of text translated from the Russian language.

of total industry financing, according to my estimates.[4] Ten banks were headquartered in St. Petersburg, the capital city, where the government was located; five were based in Moscow, which was the centre of light industry; while the rest were operating from across the provinces, from present-day Poland to Siberia. Table A1 in Appendix provides a list of bank names and bank characteristics.

Rapid industrialization was a success. Figure 1 shows that throughout the 1890s, 745 public companies were established, as opposed to 216 firms in the prior decade.[5] As a result, between 1893 and 1900, the value of output manufactured by heavy and light industry rose by 87 and 52 percent, respectively (Borodkin, 2011a, 2011c). By 1900, Russia produced 5.0 percent of global manufacturing output, which placed it close to France, the world's fourth largest manufacturer (League of Nations, 1945).

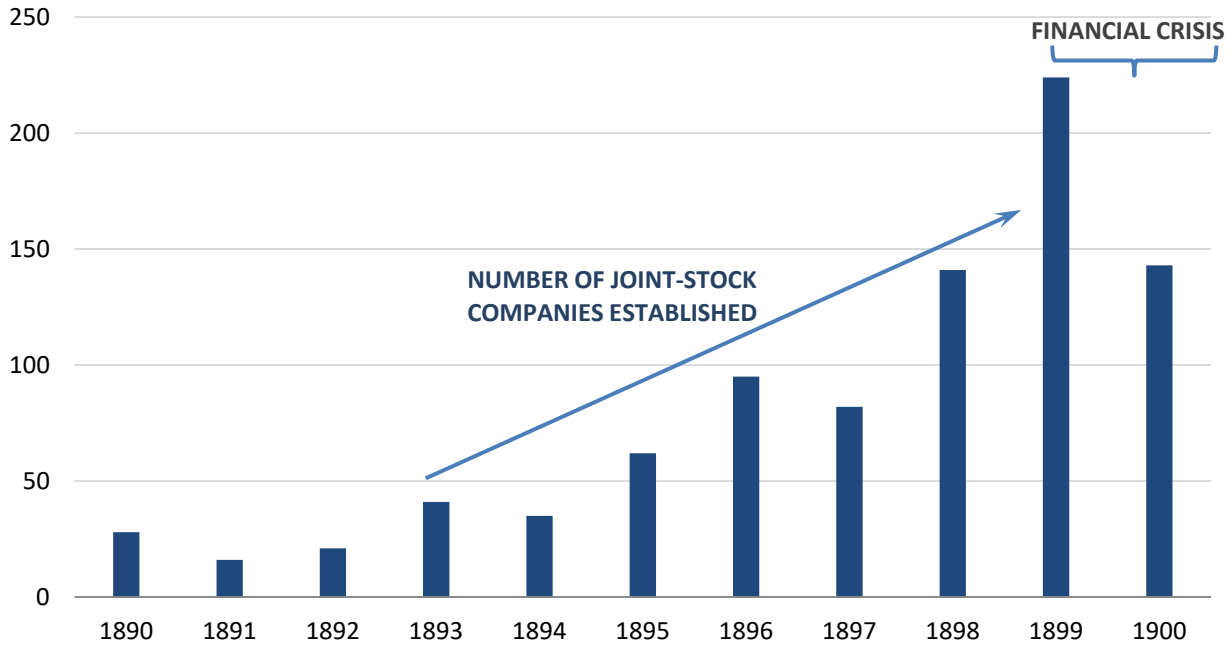

Figure 1. Number of joint-stock companies established per year, 1890-1900
Sources: Dmitriev-Mamonov (1903).

[4] I estimate that banks supplied some 61 percent of joint-stock company financing. Banks' role in financing heavy industrial companies was likely greater still. See Appendix B1 for how I derive this percentage. For comparison, Bovykin (1967) estimates that banks supplied half of heavy industry finance.

[5] Calculated based on data from Dmitriev-Mamonov (1903).

2.3. The proximate causes of the crisis

Sound industrial growth of the 1890s was interrupted by the financial crisis of 1899-1902, which was initiated by the reduction in foreign capital inflow into government bonds and securities of industrial enterprises. Beginning from 1899, the Russian government found it almost impossible to sell its debt on the Parisian market, which had been Russia's primary source of external funding (Ministry of Finance, 1900-1907b).[6] In fact, Gregory (2003) estimates that foreigners owned as much as 57 per cent of government debt in 1898. Starting from the same year, the rate of capital inflow to joint-stock firms began to decelerate. If in 1899 foreign resources invested in corporate equity and debt securities increased by a rate of 35 per cent, from 563 million rubles the year prior, then in 1900 the rate of increase was 20 per cent, in 1901 it was seven per cent, and in 1902 a meagre one per cent (Ol, 1925).[7] This contrasts markedly to the interest expressed by French, Belgian, and German investors in the years prior to crisis who found Russia to be a highly attractive opportunity. The net amount of foreign capital that entered the country soared by over 66 per cent between 1893 and 1900, from 2,951 to 4,910 million rubles (Bovykin, 1984).[8]

[6] A government bond of 159 million rubles was placed with French investors in May 1901 and another 182 million rubles in April 1902, together equivalent to 2.7 percent of Russia's GNP in 1902, but that did not make a big difference to national finances (Siegel, 2015). GNP is from Gregory (2003).

[7] Gindin (1948), who had undertaken a critical assessment of Ol's figures, concluded that his estimations were neither overstated nor understated for the period under examination.

[8] The net flow of foreign capital of 1,959 million rubles between 1893 and 1900 was equivalent to approximately 208.6 million pounds and 10.6 percent of the nominal British GDP in 1900. Foreign exchange is calculated as the average rate on a three-month bill of exchange drawn from St. Petersburg on London between 1893 and 1900. Data on the rates is from Borodkin (2011b). GDP is from Thomas & Williamson (2018).

The decline in foreign capital inflow was unrelated to Russian industrial performance and was due to the shortage of capital in Europe, itself attributable to various economic and political factors. These factors ranged from rapid industrial development in Germany in the 1890s, which consumed large amounts of spare capital, to the Greco-Turkish War of 1897 and the Spanish-American War of 1898 that diverted funds from European money markets (Ministry of Finance, 1900a; Witte, 1898b). The scarcity of capital manifested itself in the rise of official interest rates across Europe as early as the summer of 1898. In a note to the Czar, the Finance Minister Sergei Witte mentioned that on 29 October 1898, German interest rates stood at 5.5 per cent, the level not seen since the Baring crisis of 1890 (Witte, 1898b). The fact that interest rates in Europe began rising six months prior to the beginning of the crisis in Russia suggests that the sudden stop in capital flows was due to purely exogenous factors.[9] In October 1899, the Second Boer War broke out, depriving Great Britain of access to considerable gold supplies in South Africa, which further exacerbated capital constrains on European money markets (Ministry of Finance, 1900a).

As a consequence, from February 1899, the St. Petersburg stock exchange index began its three-year-long decline until the end of 1901, by which point the index would drop by 45.4 per cent.[10] In 1901-02, heavy industry went into recession and its output

[9] There was substantial opposition among top government officials to the inflow of foreign capital into Russian enterprises – although not government bonds – due to the fear that this would 'lead to the sale of our productive resources' to foreigners (Gindin, 1959, 184). In a 17 March 1899 Ministerial meeting presided by the Czar, it was decided that some new constrains would be welcomed to control the influx of foreign capital. With the coming of the crisis and the shifting of the focus on its resolution, no new administrative obstacles were formally introduced (Gindin, 1958). This suggests that government decisions were not responsible for the decline in foreign capital.

[10] Calculated based on data from Goetzmann et al. (n. d.a).

declined by 7.7 per cent.[11] Three banks failed during the crisis and two banks shortly after, while other 35 banks were intensively assisted by the State Bank and survived (Russian State Historical Archive (RGIA), collection 587, inventory 33, file 101, page 12-13).

Other causes of the crisis were thought by contemporaries to be the reduction in state procurement of industrial products (Ozerov, 1905; Kanel, 1906), inadequate consumer demand for industry products, like the use of passenger trains, that could not substitute declining state procurement (State Comptroller, 1902), and weak corporate and stock exchange regulation (Witte, 1898a). Interestingly, the crisis was never attributed to inadequate banking regulation. Perhaps this was because Russia possessed one of the most stringent and advanced regulatory and supervisory banking frameworks in Europe, according to a comparative study conducted by the Ministry of Finance (Gindin, 1960).[12]

2.4. Government industrial policy

To determine the impact of state policies on bank performance, it is essential to identify the extent to which the government contributed both to the expansion of industrial production and bank financing of industry in the years leading up to the crisis. In the current section, the focus is on the state's impact on industry.

Industrialisation policies created a protectionist environment, which served as an impetus for firms to expand operations. A stimulating effect occurred for a number of

[11]Calculated based on data from by Borodkin (2011a, 2011b).

[12] For example, the average capital ratio of St. Petersburg banks was over 25 per cent before the crisis. Calculated based on data from Golubev (1898). For comparison, capital ratios of UK banks were about 12 per cent in 1900 (Sheppard, 2006). The exception was Germany, whose credit banks had a capital to assets ratio of 44 per cent in 1904 (Calomiris, 1995).

reasons, including state procurement of industrial products that took on a new level of intensity from 1893, protective tariffs on industrial imports, subsidies to key industries, including targeted loans from state coffers, the introduction of the gold standard in 1897 for the purpose of attracting foreign capital to domestic enterprises, and the encouragement to form joint-stock companies (Gindin, 2007c). The push for rapid industrialization beginning 1893 is confirmed by a notable increase in the formation of joint-stock companies from that year onwards, as shown in Figure 1.

In this policy arrangement, state procurement played a special stimulating role. Constantly rising state and private sector demand throughout the 1890s motivated industrialists to expand operations. In fact, in the general press, the crisis was first and foremost attributed to industrial over-expansion (Migulin, 1907). Perhaps no other evidence speaks in support for the occurrence of this powerful incentive than the one that comes from the Finance Minister himself. In a report for a special meeting, dating 10 April 1903, the Finance Minister, looking back at the crisis, came to a realization that the true cause of calamities in manufacturing industry was the rapid railroad construction and industrial development initiated by the government (Gindin, 1996). Strong demand for manufacturing products outpaced supply for twelve consecutive years between 1887 and 1899. Such a marketplace reality encouraged industrialists to constantly expand their production capacity. In 1900, ‘the law of the (continual) growth in consumption’ (Gindin, 1996, p. 137) was broken and supply outpaced demand for the first time. The overstretched financial position of factories, Witte added, put them at risk of an immediate failure (Gindin, 1996).

Moreover, the prospect of obtaining state orders often led to overly optimistic decisions on the part of firms, especially in regards to the management of costs. Firms that did not have sufficient capacity to accommodate state contracts sought to enlarge operations for the sole purpose of attracting state orders. Such a strategy absorbed all of

firms' profits from existing manufacturing and drove them into additional debt (Afanasiev, 1900; Gindin, 1996). A characteristic case of a purposeful expansion for the sake of securing a government contract was the growth and bankruptcy of a major mining enterprise that led to two out of three bank failures during the crisis.[13]

In the midst of the crisis, in January 1901, the Ministry of Finance organized a special multi-day convention for the purpose of identifying the actual situation in industry. According to N. Avdakov, a spokesman for the Coalition of Southern Miners, the government set expectations for factories so high that industrialists had no other choice but to incur massive expenses for expansionary purposes. Of a similar opinion was K. Skalkovsky, a representative of metallurgical enterprises, who argued that factories had to be 'built large' (Gindin, 1996, p. 75) and then expand further if they did not want to miss an opportunity to obtain a state contract in the future. 'The push for construction was given by the government itself' (Gindin, 1996, p. 75), Skalkovsky concluded.

What made state procurement particularly stimulating was the fact that the state was a dominant buyer. According to the estimates by V. Varzar, a leading economist of the time, pig iron, iron, steel, and products manufactured from these materials across the country were consumed in 1900 in the amount of 48 per cent by the government, 22 per cent by private enterprises, 14 per cent by the general population, and 16 per cent by unidentified parties (Ozerov, 1905). Note that the industries that extracted and employed in their production the aforementioned products comprised over 62 per cent of the total heavy industry output.[14] Another piece of evidence comes from the Coalition of Southern Miners that, referring to their own data, indicated that the government's share

[13] Namely, the Alekseevski Mining and Joint-Stock Enterprise and the Kharkov Trade and the Ekaterynoslavsky commercial banks.

[14]Calculated based on data from Borodkin (2011a, 2011b).

of procurement of the same products among Southern mining factories amounted to 47 per cent of the total in 1899; whereas a representative from the Coalition of Polish Miners stated that in his region government demand amounted to a ‘mere’ 31 per cent of the aggregate (Gindin, 1996, p. 74).

Qualitative records likewise point to the vast dependence of the private sector on state orders. The report of the State Comptroller (1902, p. 55) to the Czar for the year 1901 stated that ‘(c)urrently, there is little doubt that the basis of the crisis was the artificial and excessive growth of the manufacturing industry in recent years, which had originated on the ground of the protectionist policy, large government orders, and speculation using cheap foreign capital’. In a memorandum to senior authorities, a director of the State Bank, V. Zhukovski, stressed that the coming of the crisis resulted in a battered financial situation of many companies, the fall in the value of industrial shares, tight credit conditions, and ‘the lack of government orders’ (Matveeva, 1987, p. 52-53).

Government procurement played not only a stimulating role in the 1890s, but it also contributed to the recession in industry over 1901-02 because the state could no longer sustain procurement on pre-crisis levels. At the above-mentioned January 1901 convention, the spokesman for southern miners reported that the state procurement dropped to 40 per cent in 1900, from 47 per cent in 1899 (Gindin, 1996). Qualitative records likewise point to the decline in state procurement in later stages of the crisis (Gindin, 1996). *The Economist*, in its 29 June 1901 issue, reported that ‘while production rapidly increased, the ordinary consumptive demand steadily declined, and when the Government, owing to its financial embarrassments, had to curtail its railway building and its orders for material, the hot-house industries it had fostered collapsed, and with them the inflated market for industrial securities’ (p. 969).

2.5. Government information

Having established the role of the government industry expansion, this section turns to describing the first channel through which the government affected banks' inclination to finance industry – namely, information about industrialisation policies that banks gathered by means of personal connections, or interlocks. First, I identify which officials were most likely to possess privileged information. Second, I examine how banks acted on privileged information. Third, I document how banks leveraged their government connections. The evidence suggests that banks were greatly affected by the information they received.

2.5.1. Government interlocks

Existing literature suggests that firms, including banks, set up interlocks with government officials in order to benefit from their industry-specific or managerial expertise, to enhance the firm's prestige, to gain access to preferential treatment, such as protection from domestic or foreign competitors, and to obtain preferential information on future government actions, such as state procurement plans or changes in regulation (Faccio, 2006; Grossman & Imai, 2016).[15] The last two motives represent a form of rent-seeking that can distort market competition for the benefit of connected firms and their clients, thus impairing overall economic growth.

Previous studies also suggest that banks establish interlocks with companies to reduce information asymmetries and to influence clients' corporate strategy (La Porta et al., 2003). However, corporate connections do not come without risk. Corporate interlocks might develop a strong influence on a bank and convince it to finance a project that carries a bad credit risk.

[15]For an extensive literature review on the role of interlocks, see Adams et al. (2010).

The first channel through which the Russian government affected banks' decisions was through privileged information banks received on the future course of the industrialisation policies and/or on state procurement decisions. The way banks obtained such information was by establishing personal connections with government officials and corporate board members.

Among the myriad of Russian government officials, some carried more weight and were better informed than others. The most central figure to the country's development was the Finance Minister Sergei Witte, the man who was the architect of the industrialisation policies of the 1890s and the final decision-maker on procurement contracts, corporate subsidies, and other forms of economic support (Bovykin, 1967; Shepelev, 1981). One example highlighting the centrality of Witte's position was his drive to consolidate power over the economic affairs of the nation in his own 'enlightened stewardship' (Gindin, 1959, p. 123). Witte believed that that would ensure a successful orchestration of industrialisation (Gindin, 1959). Over the years, his power grew as the Ministry of Finance became a 'super ministry' (Solovyov, 2003, p. 165), whose reach expanded well beyond the responsibilities implied by its name, as in the case of acquiring an absolute control over the Ministry of Railways (Solovyov, 2003). Lastly, the historian Gindin (1996, 2007a, 2007b, 2007c, 2007d) provided multiple examples of Witte's omnipresent reach in economic affairs of the country.

This evidence provides good reasons to believe that all major economic policy decisions emanated from Witte, and the majority of state procurement contracts passed through the Minister's hands. From this, it is possible to infer that the top government officials who were in close and regular contact with Witte were in the best position to obtain privileged information. In addition to officials in close contact with Witte, top officials at the Ministry of Railways, Agriculture, Defence, and Maritime Affairs were in a good position to acquire privileged information. This was because these officials were

in charge of procuring from private sector companies for their respective ministries. The procured products were then used for state-sponsored railway construction, the operation of the timber industry, and the rearmament of the army and navy (Gindin, 2007a). But even then, prior to placing industrial orders, the ministers had to first petition the Ministry of Finance for fiscal resources by outlining their procurement plans (Machlai, 2011).

2.5.2. The effect of government information

Based on the written correspondence between bankers and government officials and corporate board members, Bovykin (1967) documented multiple cases of banks obtaining and then acting on privileged information. Through privileged information banks learned that selected industrial companies represented low-risk and high-return opportunities. Selected industrial firms were low-risk because the government often signed multi-year procurement contracts (Gindin, 2007c), which created the perception that state procurement would continue indefinitely and at a constant level. Indeed, Figure 2 shows that on the eve of the crisis, the bond risk premium of heavy industrial companies, both extractive and manufacturing, was as low as that of long-established and conservative light industrial companies, as represented by the textile industry. What is more, the risk premium of corporate securities was just one per cent above the safest government bonds.

At the same time, selected industrial companies represented high-return opportunities because the government procured at above-market prices (Lyaschenko, 1949; Gindin, 2007c). Indeed, data between 1893 and 1898 reveals that heavy (extractive and manufacturing) industries on average only slightly underperformed the most profitable light industry, the textiles, by 3.1 and 3.0 per cent respectively, as measured by

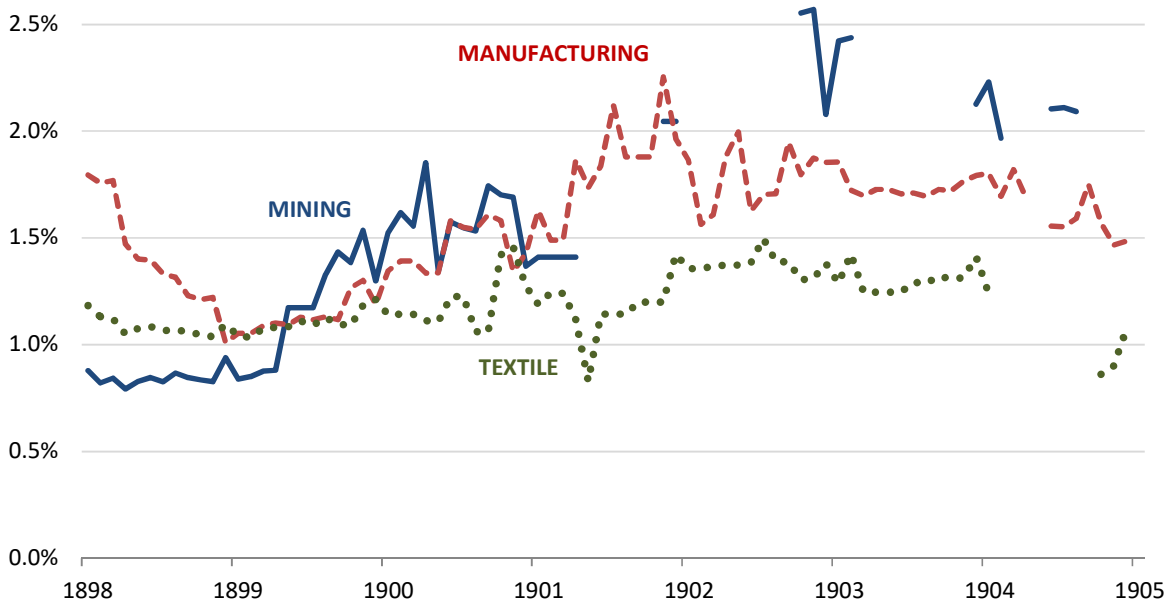

Figure 2. Monthly corporate bond risk premium by industry (in percent), 1898-1904
Notes: The corporate bond risk premium is the excess of current yield on corporate bonds of each of the three industries over the current yield of the highest-rated government security, the four percent Russian government bond of 1894. Current yield of each corporate bond is calculated based on price and coupon data of 37 individual bonds. Gaps in the series are due no trades in those months. Industry yield is the average yield of traded bonds in every month weighted by the outstanding amount of each bond.
Sources: Price and coupon data is from the Ministry of Finance (1900-1907a). The quantity of bonds outstanding is from Dmitriev-Mamonov (1903).

government orders were likely even more profitable. As a result, policies aimed at the development of heavy industry inadvertently motivated banks to delegate a higher share of their assets to heavy industry financing. Indeed, a government audit conducted amidst the crisis of one of the troubled banks revealed that 'in its activities, the bank stepped out of the strict limits of its statute, placing significant sums of money in emerging industrial enterprises both through the acquisition of shares of such enterprises and opening of credit to them' (Bovykin & Petrov, 1994, p. 105). In fact, over-lending and over-investment in a particular sector or clients is a common cause of bank distress, as has been established in historical literature.[16]

Furthermore, throughout the years, Witte's reports on state revenues and expenditures emphasized the need for unabated industrialisation. In one such report dating 1897, Witte stated that given that the government 'has followed the protectionist

[16]For examples, see Crick & Wadsworth (1958).

system with an unwavering rigor and consistency' for some time already, the premature loosening of these policies would be 'a large political mistake and a source of major shocks to the economic organism of the country' (Ministry of Finance, 1896a, p. 14). Even at the beginning of the crisis, in the official industrialisation programme presented to the Czar, dating February 1899, Witte continued to stress the importance of uninterrupted industrialisation (Von Laue, 1954).

In this information environment, it was natural for banks to expect the government to continue procuring even in a time of crisis. It might, thus, be argued that banks were more inclined to finance riskier heavy industry projects because of the expectation of industry support. In fact, this is exactly what happened during the crisis when the government orchestrated a massive bailout of industrial firms (Gindin, 1996). However, if banks engaged in riskier financing because of expected industry bailouts, that only points to state policies being responsible for bank losses in the crisis. Banks were not blameless either - they were too eager to make a profit and too blind to see that if foreign capital contracted, the state would not be able to procure on the same level.

Witte's continued emphasis on adhering as closely as possible to the existing course of action could also potentially explain why banks with well-informed connections did not see the coming of the crisis in industry. Politicians and corporate board members could have simply not realized how Witte's promises might not materialize and hence did not advise their banking interlocks on an immediate disengagement from industry financing at the beginning of the crisis.

As for the importance of interlocks between banks, existing literature suggests that personal ties between firms can result in adoption of the competitor's corporate strategy, including alignment of investment and lending decisions (Connelly et al., 2011). In a time of crisis, banks with similar characteristics or

exposure to same sectors can experience greater distress due to information contagion effects (Helwege & Zhang, 2016).

Banks in Russia seemed to mimic a corporate strategy of their neighbouring banks. Banks in St. Petersburg were known for lending to heavy industries, forming consortia for underwriting purposes, providing investors with trading services, and acting as bankers to the government, as in issuing and restructuring government debt (Lebedev, 2003).[17] Meanwhile, banks in Moscow and in the provinces generally stayed away from this speculative corporate model, the adjective used by the more conservative Moscow bankers to describe their counterparts in St. Petersburg (Salomatina, 2004). Therefore, a corporate strategy chosen by banks with political and corporate interlocks could have passed onto banks with no such connections via personal ties between banks themselves.

2.5.3. Leveraging government interlocks

In return for underwriting services, banks were often compensated by the very securities they underwrote (Bovykin, 1967). Banks seemed to be happy with this arrangement as they often retained the securities on their books. This suggests that banks did not engage in the underwrite-to-distribute practice. It was also common for banks to extend loans collateralized by industrial securities issued by clients (Bovykin, 1967). This meant that banks kept the securities on their books for the duration of the loan. Moreover, individual board members and directors of some banks were compensated with corporate securities (Bovykin, 1967). This suggests that some bankers had personal skin-in-the-game and genuinely believed in the soundness of their clients. In return for their

[17] Bankers to the government also issued government-backed mortgage securities, carried out foreign exchange interventions on stock exchanges abroad, and helped to buy out shares of private railroad companies for nationalization purposes (Lebedev, 2003).

services, banks were also granted seats on corporate boards. Sometimes the reverse occurred (Bovykin, 1967). However, given that bank board members held directorships and ownership stakes with multiple corporations, they are best regarded as bankers on the boards of corporations, not the other way around.

As banks became financially and interpersonally intervened with companies, they began to leverage their government connections for the benefit of their corporate clients. Some banks directly petitioned ministries for procurement orders for their clients (Bovykin, 1967), in what could be deemed as rent-seeking. This could have resulted in the suboptimal redistribution of state orders. However, there is at least one reason to believe that banks' petitions on their own could not have resulted in such a severe misallocation of procurement as to lead to the recession of 1901-02 in heavy industry. In the 1890s, industrial opportunities were abundant – 456 new joint-stock companies were established between 1893 and 1898 (Dmitriev-Mamonov, 1903). There was no need for a bank to mislead the government into procuring from a poorly-managed company just because it was the bank's client. The bank could disinvest its holdings and then move on to better opportunities. In fact, Bovykin (1967) documented how banks consistently rejected unattractive investment and lending opportunities and sold unsuitable assets.

2.6. Government banking policy

This section refers the reader to Appendix B2, which examines the two other channels through which the government affected banks' inclination to finance industry: (1) the government's expectation of banks to finance industrial development, and (2) the State Bank's policy towards the banking sector. The evidence suggests that these two channels played minor, if not negligible, role in affecting banks' decisions.

2.7. Empirical strategy and variables

Having established the role of government officials and corporate board members in banks' decision-making in the 1890s, I turn to analyzing the impact of interlocks on bank performance during the crisis of 1899-1902. For that, I estimate OLS regression models, such that:

$$\text{Distress}_i = \beta_0 + \beta_1 \text{ (interlock variables)} + \beta_2 \text{ (bank-specific variables)} + \varepsilon_i$$

2.7.1. Dependent variables

To quantify bank distress, I use two separate dependent variables. In the first instance, Distress_i comes in the form of net losses banks sustained on investment portfolios over the entire crisis period, calculated as the ratio of net investment portfolio losses between 1899 and 1902 to the average value of investment portfolio owned by the bank over the same time period. For the three banks that went bankrupt before the end of 1902, I calculate the denominator only for the years when the bank was still in operation. To perform these calculations, I hand-collected end-of-year investment portfolio holdings for the years 1899-1902 and net investment losses for the years 1899-1900 from *The Consolidated Balance Sheets* (Golubev, 1899-1902a), which I found in the Russian State Library. Net investment losses for the years 1901-02 were gathered from annual reports of individual banks, when available; otherwise, they were taken from *The Directory of Corporations and Partnerships* (Dmitriev-Mamonov, 1903).[18]

In the second instance, Distress_i takes the form of the percentage change in the bank share price from the maximum to the minimum level over 1899, the first year of the

[18] Annual reports of the following banks were used: the Russian for Foreign Trade Bank, the St. Petersburg Discount and Loan Bank, the Moscow Discount Bank, the Volzhsko-Kamski, the St. Petersburg Muscovy, the St. Petersburg International, and the St. Petersburg Private commercial banks.

crisis. During this period, the St. Petersburg Stock Exchange experienced a rapid decline of 10.6 per cent out of 45.4 per cent total for the crisis (Goetzmann et al., n.d.a). I obtained bank share prices from the dataset constructed by Goetzmann et al. (n.d.b). See Appendix B3 for the reasons why these particular distress measures were chosen.

2.7.2. Independent variables

To capture the effect of government and corporate connections on bank performance, I add interlock variables to my models. I register two broad categories of interlocks: direct and indirect ones. First, I recognize a direct interlock when the same person holds office at two entities – that is, a bank and a government body or a bank and a company. This occurs only when first, middle, and last names of two individuals match. Second, I consider an indirect interlock when a board member at a bank is connected to his sibling, either in the government or at a company. This occurs when last and middle names of two individuals match.[19] This is because in Russia, the father's first name has customarily become the child's middle name, the tradition that has been followed since the 18th century (King & Wilson, 2011; Lisbach & Meyer, 2013). Moreover, for two individuals to be identified as siblings, both individuals must have made great progress in their respective careers. After all, only a selected few became top government officials or corporate board members. Furthermore, a good portion of bankers' last names were unique and of non-Russian descent, including such surnames as Nobel, Bark, Gromme, and Lego.

Next, I establish five different types interlocks: two government, two corporate, and one banking. I consider an interlock with the government, when a member (direct interlock), or the member's sibling (indirect interlock), on the board of directors or the

[19] Another way an interlock could have been established was via a father-son connection. However, I find no such linkages. Women did not hold board positions at that time.

management committee of a bank is employed by a government entity – that is to say a state department, organization, or agency – through which he has a potential to gather preferential intelligence. To identify which government organizations to include in my dataset, I review all public entities that operated in Russia, as listed in *Address-Calendar* (1898). I keep nearly all entities except the ones whose employees were absolutely unrelated to the industrialisation process, as, for example, in the case of the Department of the Orthodox Confession. I gather names of officials employed by the state in 1898 from *Address-Calendar* (1898) and names of board members employed by banks in 1898 from *Russian Banks* (Golubev, 1899b). Note that I treat all government officials as equal, as to not differentiate between higher- and lower-ranked officials. Instead, I create a separate type of a government interlock, to which I turn next.

Not all connections are equal in value. Access to government officials close to the epicentre of policy-making should be more beneficial to bankers than ties to officials who are further away from decision makers. With this in mind, I record an interlock with the Finance Minister's circle of well-informed officials when there is a direct or indirect interlock between a bank board member and highest-ranked officials who are likely to be in close contact with the Minister of Finance on a regular basis. Namely, I include top officials at (1) the Ministry of Finance, the centre of policy-making on all national economic affairs (Raskin, 1998); (2) the Ministry of Railways, which was one of the largest buyers in the country (Solovyov, 2003); (3) the Ministry of Agriculture, Defence, and Maritime Affairs that procured from private sector companies; (4) the State Bank, which provided loans to industry and banks; (5) the State Nobles' Land Bank, which extended loans to nobility, some of whom owned industrial enterprises; (6) the State Treasury, which was responsible for managing national finances (Raskin, 1998); (7) the Government Senate, the supreme supervisory body, in which Witte often appeared with reports (Raskin, 1998); and (8) the Council of the State, the supreme law-making body

(Raskin, 1998). As a result, only the most influential government bodies are included. The limited number of top officials at these agencies should insure that my interlock variables capture the passage of privileged information.

As banks sustained losses related to industry, I track bank ties to the corporate world. I consider the occurrence of an interlock with non-financial firms when a bank board member either personally sits on the board or management committee of a non-financial firm, or when that banker's sibling serves in that role. I include in my dataset a full range of non-financial companies: heavy industrial, light industrial, and non-industrial. Names of corporate board members are sourced from *Statistics on Joint-Stock Businesses in Russia* (Pushkin, 1897). The aim was to pick a data source that was not too close to the crisis in 1899, as it took time for ideas of newly-appointed corporate board members to materialize into bank strategy. Besides, corporate board members were elected for five-year periods (Rudjuk, 2005), indicating that the composition of the majority of boards was likely to remain unchanged between the end of 1896 and 1899. Note that I consider different types of corporate board members as equivalent: a chairman, a vice-chairman, and a regular member are counted as identical.[20]

Not all corporate connections are equal in value. Since the state targeted the development of heavy industrial companies, bankers' connections with such firms represent an alternative way of tracing the effect of state policies on bank performance. Hence, I record an interlock with heavy industrial firms when a board member at a bank is also a board member at a heavy industrial firm, or when the banker's sibling serves in that role. I include in my dataset all firms operating in heavy industries, namely: extractive industries, such as oil and minerals; manufacturing industries that produced

[20] I do not rank board members because the purpose of my analysis is to identify whether corporate connections mattered, rather than to pinpoint board members of which rank were more consequential than others.

end products like railroad tracks and ships; the chemical industry; the timber industry; and state-owned railroad companies.[21] When there is doubt about whether a particular firm belonged to a heavy industry, I consult company descriptions provided by Dmitriev-Mamonov (1903). To identify state-owned railroad companies, I refer to *The Statistical Yearbook of the Ministry of Railways* (Ministry of Railways, 1901).

To see if banks mimicked a corporate strategy of their neighbouring banks, I document an interlock with banks when a board member at a bank is connected to a board member at another bank, either personally or via a sibling. To reiterate, I end up with five types of interlock variables: bank board members connected to government officials, to the Finance Minister's circle, to all kinds of non-financial firms, to heavy industrial companies, and to other banks.

What are these interlocks capturing? As discussed in the sections above, personal connections capture the passage of privileged information. If they were to register corruption, then we would expect to see little of bank distress. That is because, as discussed above, the suboptimal redistribution of state orders could not, on its own, have lead to the recession of 1901-02 in heavy industry. It would also be argued that omitted factors, such as banks' poor oversight of industrial clients, are driving both the presence of interlocks and bank performance. However, the industrialization policies and the information that came with it occurred first, while any potentially omitted factors could only be the result of the formed information environment.

My next step is to identify actual interlocks by matching banker names with the names of government officials and separately with those of corporate board members. I use a source code written specifically for this task. The matching process of 416 bankers,

[21] State-owned railroad companies are included because some banks underwrote state-backed railroad bonds. Banks' inability to find buyers for such bonds during the crisis forced them to keep the bonds on their books, thus impairing their performance.

3,378 corporate board members, and 7,596 government officials reveals that there were 49 bankers with personal links to 63 officials and 142 bankers with personal ties to 418 corporate board members. The matching also indicates that 74.2 per cent of all banker connections to the political and corporate world were arranged via a sibling, while the remaining 25.8 per cent were arranged via a direct interlock.

As the final step, I sum the number of bank board members with connections of each type and use the total amounts in regression analysis. Note that if a particular banker is connected to multiple corporate board members, I count that as a single interlock of a particular type for that bank. For me to record ten bank board members with interlocks, all ten members must have one or more corporate ties. The same method is applied to bank connections with government officials.

I also add bank-specific variables to my regressions to control for the heterogeneity among banks. These variables are based on December 1898 data, the moment when there was little expectation of the upcoming crisis in the minds of bankers, yet that was just two months before the beginning of the stock market downturn. My choice of these variables is as follows, with full descriptions located in Table 1: bank age, number of bank locations, leverage, liquidity, asset growth in the year prior to the crisis, and board size. I collect these variables from *The Consolidated Balance Sheets* (Golubev, 1898a), with the exception of bank age, which is gathered from *Russian Banks* (Golubev, 1899b). Lastly, Tables A2 and A3 in the Appendix provide correlation matrices for all variables.

2.8. Empirical results

To preview my results, I examine the distribution of interlocks among banks. Table A4 in the Appendix shows that banks located in St. Petersburg, the capital city,

Table 1: Definitions of variables used in regression analysis

Variables	Unit	Definition
Dependent variables		
Net investment losses	Ratio	Net losses on equity and bond investments, 1899-1902 to Average value of investments, 1899-1902
Share price	Ratio	Percentage change in bank share price, from maximum to minimum value over 1899
Net investment profits	Ratio	Net profits on equity and bond investments, 1895-1898 to Average value of investments, 1895-1898
Control variables		
Bank age	Years	Bank age
Number of locations	Number	Number of bank locations in 1898, including headquarters, branches, and agencies
Leverage	Ratio	Total debt to Total assets
Liquidity	Ratio	Percentage of total assets held in cash at the State Bank and other depository institutions
Asset growth	Ratio	Change in total assets over 1898
Board size	Number	Total members present on the bank board of directors and management committee
Interlock variables		
Direct interlock	Number	A bank board member holds office at a government or corporate entity
Indirect interlock	Number	A bank board member is connected to his brother at a government or corporate entity
Member connected to non-financial firms	Number	Bank board members interlocked with non-financial firms, end of 1896
Member connected to heavy industrial firms	Number	Bank board members interlocked with heavy industrial firms, end of 1896
Member connected to the government	Number	Bank board members interlocked with government officials in 1898
Member connected to the Finance Minister's circle	Number	Bank board members interlocked with government officials close to the Finance Minister in 1898
Member connected to banks	Number	Bank board members interlocked with competitor banks, end of 1898
Interlocks with non-financial firms	Number	Connections between bank board members and non-financial firms, end of 1896
Interlocks with heavy industrial firms	Number	Connections between bank board members and heavy industrial firms, end of 1896
Interlocks with the government	Number	Connections between bank board members and officials in 1898
Interlocks with the Finance Minister's circle	Number	Connections between bank board members and officials close to the Minister of Finance in 1898
Interlocks with banks	Number	Connections between bank board members and competitor banks at the end of 1898
Share of board connected to non-financial firms	Ratio	Bank board members connected to non-fininancial firms in 1896 to All bank's board members
Share of board connected to heavy industrial firms	Ratio	Bank board members connected to heavy industrial firms in 1896 to All bank's board members
Share of board connected to the government	Ratio	Bank board members connected to government officials in 1898 to All bank's board members
Share of board connected to the Finance Minister's circle	Ratio	Bank board members connected to officials close to the Min. of Fin. in 1898 to All board members
Share of board connected to banks	Ratio	Bank board members connected to other banks, end of 1898 to All bank's board members

were more connected to industry than banks located in Moscow and in the provinces. St. Petersburg banks had 0.5 corporate ties per board member, followed by Moscow banks with 0.4 interlocks, and provincial banks with 0.2 contacts. The table also shows that St. Petersburg banks were the most connected group with heavy industry. Their 35 personal linkages resulted in the number of connections per board member being four times as dense as that of Moscow or provincial banks. Given that St. Petersburg banks sustained largest financial losses among the three banking groups, as is shown in the summary statistics in Table 2, their high interconnectedness with heavy industry implies that personal ties might have played a role in bank distress.

At the same time, Moscow banks were most highly connected to government officials, with 0.3 connections per bank member. However, when it came to connections with the Finance Minister's circle, St. Petersburg banks' 15 connections represented connectivity per board member three times as dense as that of Moscow banks.[22] Table 2 also presents summary statistics on interlock and non-interlock variables for all banks.

My core evidence is presented in Table 3, which reports the results of five regression models, with the only difference between each specification being the type of the interlock variable used. Note that these models incorporate both direct and indirect interlocks. Robust standard errors are used in all models. Model (1) shows that with each additional bank board member connected to a variety of government officials, both close to the Minister of Finance and not directly related to his circle, a bank experienced 1.1 per cent of extra losses on its investment portfolio, though the result is not statistically significant at standard levels. Model (2) tests exclusively for bank board members connected to officials close to the Minister of Finance. The model reveals that with each

[22]The proportion of banks with connections to the Finance Minister's circle was 28 percent. For comparison, Grossman & Imai (2016) find that that the proportion of British banks connected to members of the Parliament was about 24 percent in 1900.

Table 2: Summary statistics

	N	mean	median	SD	min	max
Net investment losses (all banks)	39	0.06	0.03	0.09	0.00	0.41
Net investment losses (St. Petersburg banks)	10	0.14	0.13	0.13	0.00	0.41
Net investment losses (Moscow banks)	5	0.03	0.03	0.03	0.00	0.08
Net investment losses (Provintial banks)	24	0.03	0.02	0.05	0.00	0.22
Share price (all banks)	26	-0.16	-0.16	0.11	-0.41	0.00
Share price (St. Petersburg banks)	9	-0.23	-0.22	0.09	-0.41	-0.07
Share price (Moscow banks)	4	-0.21	-0.22	0.07	-0.27	-0.14
Share price (Provintial banks)	13	-0.09	-0.07	0.08	-0.29	0.00
Net investment profits (all banks)	36	0.16	0.10	0.17	0.00	0.73
Net income (all banks)	35	0.08	0.08	0.03	0.02	0.14
Bank size	39	9.86	10.13	1.32	6.84	12.06
Bank age	39	21.82	26.00	9.70	1.00	34.00
Number of locations	39	7.64	4.00	8.93	1.00	30.00
Leverage	39	0.59	0.61	0.16	0.09	0.81
Liquidity	39	0.05	0.04	0.03	0.00	0.17
Asset growth	39	0.20	0.13	0.30	-0.66	1.15
Board size	39	10.33	9.00	5.46	3.00	25.00
Member connected to the government	39	1.26	0.00	2.12	0.00	9.00
Member connected to the Finance Minister's circle	39	0.56	0.00	1.12	0.00	5.00
Member connected to non-financial firms	39	3.62	3.00	3.47	0.00	12.00
Member connected to heavy industrial firms	39	1.41	1.00	1.90	0.00	8.00
Member connected to banks	39	1.05	0.00	1.83	0.00	7.00
Interlocks with the government	39	1.62	0.00	2.71	0.00	11.00
Interlocks with the Finance Minister's circle	39	0.69	0.00	1.38	0.00	6.00
Interlocks with non-financial firms	39	9.67	5.00	11.30	0.00	43.00
Interlocks with heavy industrial firms	39	3.03	1.00	4.29	0.00	17.00
Interlocks with banks	39	1.08	0.00	1.90	0.00	7.00
Share of board connected to the government	39	0.09	0.00	0.12	0.00	0.38
Share of board connected to the Finance Minister's circle	39	0.04	0.00	0.08	0.00	0.27
Share of board connected to non-financial firms	39	0.33	0.35	0.26	0.00	1.00
Share of board connected to heavy industrial firms	39	0.12	0.09	0.15	0.00	0.56
Share of board connected to banks	39	0.07	0.00	0.11	0.00	0.42

additional interlock of this type, a bank sustained a much higher loss equal to 5.9 per cent of extra portfolio losses.

The conclusion from these results is that the banks that had been influenced most by industrialisation policies via personal connections exposed themselves financially to heavy industrial companies and, as a result, experienced greater losses. Importantly, it is possible to conclude that the banks that sustained greater losses were the financiers of heavy industry because the value of heavy industrial equities declined by a substantially greater amount than that of light industrial companies.[23]

Model (3) in Table 3 provides evidence on the presence of a bank board member connected to all kinds of non-financial firms resulting in 2.3 per cent of additional investment losses. Model (4) narrows the range of personal connections to bank board members connected specifically to heavy industrial companies and reveals that the presence of this type of interlock led to even greater distress, equal to 4.1 per cent of additional portfolio losses. This suggests a particularly distressful effect of personal ties to firms that were highly incentivized by the government to expand operations, namely heavy industrial firms. Notice that interlocks with the Finance Minister's circle brought greater distress than connections with heavy industrial companies. A possible explanation for this result is that banks with connections to the Finance Minister's circle were more inclined to invest in heavy industry as compared to banks with only heavy industry interlocks.

[23] 52 heavy industrial companies traded between the peak in February 1899 and the trough in December 1901 on the St. Petersburg Stock Exchange experienced an average and median stock price decline of 56.2 and 65.5 percent, respectively. Seven light industrial companies traded over the same period experienced an average and median stock price decline of 22.2 and 27.3 percent, respectively. When stocks were not traded between February 1899 and December 1901, the closest available stock price was used. Thinly-traded stocks and second and subsequent stock offerings are not counted. Calculated based on data from Goetzmann et al. (n.d.b).

Table 3: Net investment losses 1899-1902, OLS model

	1	2	3	4	5
Member connected to the government	0.011				
	(0.015)				
Member connected to the Finance Minister's circle		0.059***			
		(0.021)			
Member connected to non-financial firms			0.023***		
			(0.007)		
Member connected to heavy industrial firms				0.041***	
				(0.009)	
Member connected to banks					0.013
					(0.012)
Bank age	0.000	-0.001	-0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Number of locations	0.000	-0.002	-0.001	-0.001	-0.000
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Leverage	-0.057	0.061	-0.058	0.023	-0.045
	(0.137)	(0.105)	(0.096)	(0.076)	(0.120)
Liquidity	0.641	0.086	0.548	0.010	0.619
	(0.841)	(0.427)	(0.661)	(0.377)	(0.793)
Asset growth	0.080	0.072	0.088*	0.085*	0.069
	(0.059)	(0.049)	(0.046)	(0.047)	(0.053)
Board size	0.002	-0.000	-0.005	-0.004	0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.008	0.016	0.031	0.020	0.003
	(0.055)	(0.074)	(0.045)	(0.052)	(0.052)
Observations	39	39	39	39	39
Adjusted R^2	-0.019	0.335	0.359	0.519	-0.001

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Bank share price percentage change 1899, OLS model

	6	7	8	9	10
Member connected to the government	-0.011				
	(0.010)				
Member connected to the Finance Minister's circle		-0.031**			
		(0.013)			
Member connected to non-financial firms			-0.014**		
			(0.005)		
Member connected to heavy industrial firms				-0.021**	
				(0.009)	
Member connected to banks					-0.026**
					(0.011)
Constant	-0.142***	-0.136***	-0.094***	-0.118***	-0.125***
	(0.026)	(0.021)	(0.031)	(0.024)	(0.024)
Observations	26	26	26	26	26
Adjusted R^2	0.002	0.095	0.157	0.131	0.154

Robust standard errors in parentheses. Univariate model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Univariate models (6) to (9) in Table 4 largely confirm the results discussed in models (1) to (4) by testing the impact of interlocks on another distress variable, namely the percentage change in the bank share price over the first year of the crisis.[24] These models incorporate both direct and indirect interlocks. The models reveal that the presence of a bank board member connected to the Finance Minister's circle and separately to heavy industrial companies translated to an additional reduction in the bank's share price.

Model (5) in Table 3 shows that the presence of a bank board member connected to competitor banks did not lead to statistically significant investment losses. However, model (10) in Table 4 displays that having a board member of this type lead to a 2.6 per cent extra decline in the bank's stock price. These results suggest that further evidence is needed to make a fully conclusive statement on the role of banking connections.

How distressful were industrial looses for bank performance? Official audits revealed that key banks were practically bankrupt or on the verge of collapse, and it was only due to the massive assistance on the part of the State Bank that the larger half of banking system did not fail (Bovykin, 1984).

2.9. Robustness

In models (11) to (15) in Appendix Table A5, I perform the first of my nine robustness checks. The models point that personal connections were also the conduit that allowed banks to make extra profits in the years leading up to the crisis. In particular, Model (12) portrays that having a bank board member with both direct and indirect connections to the Finance Minister's circle resulted in 9.2 per cent of additional investment profits

[24] Not all banks were publicly traded on the St. Petersburg stock exchange, and hence the limited sample size of 26. Henceforth, all models that use bank share price as the dependent variable are univariate.

between 1895 and 1898. Model (14) shows that being connected to heavy industrial firms brought rewards as well, equal to 6.5 per cent in portfolio outperformance. These were considerable additional revenues for a bank because during this same period the St. Petersburg Stock Exchange appreciated by a mere 6.9 per cent.[25]

In models (16) to (20) in Appendix Table A6 and models (21) to (25) in Table A7, I perform the second of my seven robustness checks. These models use a different set of interlock variables, capturing only direct interlocks that occur when a bank board member himself holds office in the government or at a company. These models confirm the results of core models (1) through (10).

In models (26) to (30) in Appendix Table A8 and models (31) to (35) in Table A9, I conduct the third robustness check using only indirect interlock variables that occur when a bank board member is connected to his sibling in the government or at a company. Model (27), which captures the impact on net investment losses, shows that the presence of an indirect interlock with the Finance Minister's circle is not statistically significant. However, model (32), which records the impact on the bank share price, displays statistical significance for the same type of interlock. Therefore, the effect of connections with the Finance Minister's circle is not fully conclusive. With this exception, models (26) to (35) validate the results of core models (1) through (10).

Another nuance to note in these models is that the coefficients on indirect interlocks with non-financial and heavy industrial companies are higher than on direct interlocks. Intuitively, we would expect direct interlocks to bring more distress. One potential explanation for the opposite result is that direct interlocks were not the main decision-makers, while bank board members with indirect connections were.

In models (36) to (40) in Appendix Table A10 and models (41) to (45) in Table A11, I perform the fourth robustness check. These models use yet another set of

[25]Calculated based on data from Goetzmann et al. (n. d.).

interlock variables in the form of the share of bank board members with both direct and indirect connections out of the total number of board members at each bank. These models confirm the results of core models (1) through (10).

In models (46) to (50) in Appendix Table A12 and models (51) to (55) in Table A13, I perform the fifth robustness check. These models use interlock variables in the form of the aggregate number of both direct and indirect connections at each bank. These models, likewise, support the results of core models (1) through (10).

In models (56) to (60) in Appendix Table A14, I perform the sixth of my robustness checks by adding an interaction term between bank board members connected to the Finance Minister's circle and heavy industrial companies. First, model (59) shows that the independent effect of an interlock with heavy industry, for the bank with no connections to the Finance Minister's circle, is a net investment loss, just as expected. Second, model (57) reveals that the effect of an interlock with the Finance Minister's circle, for the bank with no connections to heavy industry, is not statistically significant. This indicates that a bank had to have heavy industry connections in order to sustain investment losses. Third, the positive and statistically significant interaction term in model (57) suggests that the effect of having an interlock with heavy industry is strengthened by the presence of a connection with the Finance Minister's circle.

In models (61) and (62) in Appendix Table A14, I perform the seventh robustness check, in which I test for the presence of interlocks with both government and industry. In particular, model (62) reveals that with each additional bank board member simultaneously connected to the Finance Minister's circle and heavy industrial companies, the bank experienced a 9.9 percent of extra investment losses. This loss is larger in magnitude than the one associated with an interlock with only the Finance Minister's circle, as shown in model (2).

In models (63) to (67) in Appendix Table A15 and models (68) to (72) in Table A16, I perform the eighth robustness check using an alternative method to calculate my robust standard errors. I employ iteratively reweighted least squares, which assigns a weight to each observation. The results of these models confirm those of core models (1) through (10). Note that, following Abadie et al. (2017), I do not cluster standard errors because I am using the entire population of banks in the analysis.

In models (73) to (77) in Appendix Table A17, I perform the ninth robustness check by running Tobit models in order to address censoring issues. Censoring issues arise due to the dependent variable, net investment losses, being censored at zero for banks that made net investment profits over the crisis period.[26] These models also support the results of core models (1) through (10).

2.10. Conclusions

The main finding of this chapter is that the banks that experienced greater distress during a major financial crisis of 1899-1902 had more connections to government officials who were close to the epicentre of policy marking as well as more connections to companies that had been highly stimulated by industrialisation policies to expand production. These findings indicate a negative effect of national development policies on bank performance following Russia's rapid economic growth in the 1890s.

The findings of this chapter suggest that it is not only banking regulation that can alter banks' behaviour, but also other policy-conceived incentives. In industrialising Russia, it was policies targeted at the development of the real economy that enticed banks to financially expose themselves to new technology companies. These badly designed incentives culminated in disastrous bank performance when heavy industry

[26] See Appendix B2 for the reasons why net investment losses were chosen as a dependent variable.

experienced a slowdown. In the end, even the possession of a stringent regulatory and supervisory banking framework did not safeguard banks from near failure.

Put differently, during the crisis, sound investment and lending opportunities turned out to be not as safe as market participants, bankers, and government officials had believed them to be prior to the crisis. History offers multiple examples of similar cases. What this chapter has attempted to show is that the government itself can point to seemingly secure and low-risk opportunities that eventually turn out to be poor and costly decisions for banks.

The findings also suggest that it is worthwhile to be aware of potential political ramifications of economic development policies. The financial crisis aggravated the already poor working and living conditions among ordinary workers, contributing to the propagation of labour strikes (Gefter, 1955; Gindin, 1950). The First Russian Revolution of 1905, which began just two and a half years after the conclusion of the crisis, was initiated by workers at the very industries the government was trying to develop (Vvedensky, 1952).

Appendix 2A

Table A1: List of banks

Bank name	Headquarters	Total assets	Branches	Bank age
Volzhsko-Kamski Commercial Bank	St. Petersburg	173,402	22	28
St.Petersburg International Commercial Bank	St. Petersburg	145,697	29	29
Russian for Foreign Trade Bank	St. Petersburg	108,231	14	27
Russo-Asian Bank	St. Petersburg	96,715	24	2
St.Petersburg Discount and Loan bank	St. Petersburg	73,734	2	29
Russian for Trade and Commerce Commercial Bank	St. Petersburg	67,437	17	8
St.Petersburg Private Commercial Bank	St. Petersburg	48,878	3	34
St.Petersburg-Azovcky Commercial Bank	St. Petersburg	45,127	9	11
St.Petersburg Muscovy Commercial Bank	St. Petersburg	28,272	1	14
Credit Lyonnais	St. Petersburg	28,203	3	7
Moscow Merchant Bank	Moscow	117,016	4	32
Moscow International Trade Bank	Moscow	60,701	30	25
Moscow Trade Bank	Moscow	32,863	1	27
Moscow Discount Bank	Moscow	23,849	2	28
South-Russian Industrial Bank	Moscow	15,993	8	27
Azovsko-Donskoi Commercial Bank	The provinces	81,522	28	27
Commercial Bank in Warsaw	The provinces	55,574	9	28
Siberian Trade Bank	The provinces	31,476	13	26
Riga Commercial Bank	The provinces	28,954	6	26
Trade Bank in Lodz	The provinces	25,819	4	26
Orlovsky Commercial Bank	The provinces	25,527	22	26
Odessa Discount Bank	The provinces	25,152	3	19
Tiflis Commercial Bank	The provinces	24,355	4	26
Vilnius Private Commercial Bank	The provinces	15,959	6	26
Kiev Private Commercial Bank	The provinces	15,008	1	30
Kharkov Trade Bank	The provinces	12,143	1	30
Minsk Commercial Bank	The provinces	11,414	12	25
Warsaw Discount Bank	The provinces	10,745	1	27
Pskov Commercial Bank	The provinces	10,183	5	25
Voronezh Commercial Bank	The provinces	5,497	4	25
Nizhny Novgorod Merchant Bank	The provinces	5,242	1	28
Kazan Merchant Bank	The provinces	3,981	1	25
Commercial Bank in Kostroma	The provinces	3,948	2	27
Lodz Merchant Bank	The provinces	3,444	1	1
Ekaterynoslavsky Commercial Bank	The provinces	3,308	1	26
Commercial Bank in Bialystok	The provinces	2,827	1	1
Rostov-on-Don Merchant Bank	The provinces	2,338	1	5
Baltic Commerce and Industry Bank	The provinces	2,236	1	1
Central Asian Commercial Bank	The provinces	932	1	17

Notes: sorted by location of headquarters and then by total assets. Total assets are in thousands of rubles.
Sources: Golubev (1898a, 1899b)

Table A2: Correlation of outcome and bank-specific predictor variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Net investment losses	1.00									
(2) Share price	-0.46**	1.00								
(3) Net investment profits	0.72***	-0.41**	1.00							
(4) Bank size	0.47**	-0.50**	0.37*	1.00						
(5) Bank age	0.02	0.31	0.20	-0.05	1.00					
(6) Number of locations	0.01	-0.29	-0.11	0.60***	-0.06	1.00				
(7) Leverage	0.06	0.13	0.18	0.31	0.10	0.06	1.00			
(8) Liquidity	0.26	0.07	-0.02	0.22	-0.26	0.20	-0.07	1.00		
(9) Asset growth	-0.02	0.07	-0.02	-0.37*	0.07	0.01	-0.43**	-0.22	1.00	
(10) Board size	0.34	0.00	0.03	0.44**	0.12	0.18	0.22	0.08	-0.08	1.00

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Correlation of interlock predictor variables

	(1)	(2)	(3)	(4)	(5)
(1) Member connected to the government	1.00				
(2) Member connected to the Finance Minister's circle	0.61***	1.00			
(3) Member connected to non-financial firms	0.66***	0.55***	1.00		
(4) Member connected to heavy industrial firms	0.42***	0.66***	0.81***	1.00	
(5) Member connected to banks	0.70***	0.42***	0.65***	0.39**	1.00

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Distribution of bank board member connections

	Location	Bank board member connected to: Non-financial firms	Heavy industry firms	The government	The finance minister's circle	Other banks	Total bank board members
Direct interlock	St. Petersburg	54	29	12	9	12	
Indirect interlock	St. Petersburg	8	6	8	6	5	
Total	St. Petersburg	62	35	20	15	17	120
Interlocks with heavy industry firms as % of those with all non-financial firms	St. Petersburg		*56%*				
Interlocks with the Finance Minister's circle as % of those with the government	St. Petersburg				*75%*		
Direct interlock	Moscow	30	4	14	1	15	
Indirect interlock	Moscow	1	0	7	2	4	
Total	Moscow	31	4	21	3	19	72
Interlocks with heavy industry firms as % of those with all non-financial firms	Moscow		*13%*				
Interlocks with the Finance Minister's circle as % of those with the government	Moscow				*14%*		
Direct interlock	Provincial	39	13	4	1	3	
Indirect interlock	Provincial	10	3	4	3	2	
Total	Provincial	49	16	8	4	5	224
Interlocks with heavy industry firms as % of those with all non-financial firms	Provincial		*33%*				
Interlocks with the Finance Minister's circle as % of those with the government	Provincial				*50%*		
	All banks	142	55	49	22	41	416

Notes: Direct interlock occurs when a bank board member holds once in the government or at a company. Indirect interlock occurs when a bank board member is connected to his brother either in the government or at a company. Location is the location of the bank's headquarters. Member connected to non-financial firms is the number of bank board members interlocked with non-financial firms. Member connected to heavy industrial firms is the number of bank board members interlocked with heavy industrial rms. Member connected to the government is the number of bank board members interlocked with all types of government officials. Member connected to the Finance Minister's circle is the number of bank board members interlocked with government officials who were in close contact with the Minister of Finance. Member connected to other banks is the number of bank board members interlocked with competitor banks. Total bank board members is the total number of bank board members at all banks.

Table A5: Net investment profits 1895-1898, OLS model

	11	12	13	14	15
Member connected to the government	0.020				
	(0.019)				
Member connected to the Finance Minister's circle		0.092**			
		(0.041)			
Member connected to non-financial firms			0.047***		
			(0.014)		
Member connected to heavy industrial firms				0.065***	
				(0.020)	
Member connected to banks					0.021
					(0.016)
Baseline controls	✓	✓	✓	✓	✓
Constant	0.158	0.179*	0.178*	0.133	0.153
	(0.107)	(0.104)	(0.091)	(0.102)	(0.099)
Observations	36	36	36	36	36
Adjusted R^2	-0.125	0.110	0.317	0.256	-0.120

Robust standard errors in parentheses. Baseline controls are bank age, number of locations, asset growth, and board size.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Net investment losses 1899-1902, OLS model

	16	17	18	19	20
Member connected to the government (direct interlock)	0.014				
	(0.019)				
Member connected to the Finance Minister's circle (direct interlock)		0.085**			
		(0.036)			
Member connected to non-financial firms (direct interlock)			0.020***		
			(0.007)		
Member connected to heavy industrial firms (direct interlock)				0.043***	
				(0.011)	
Member connected to banks (direct interlock)					0.004
					(0.011)
Baseline controls	✓	✓	✓	✓	✓
Constant	0.003	0.002	0.033	0.035	-0.008
	(0.057)	(0.072)	(0.053)	(0.051)	(0.057)
Observations	39	39	39	39	39
Adjusted R^2	-0.026	0.274	0.231	0.426	-0.048

Robust standard errors in parentheses. Baseline controls are bank age, number of locations, leverage, liquidity, asset growth, board size

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Bank share price percentage change 1899, OLS model

	21	22	23	24	25
Member connected to the government (direct interlock)	-0.013				
	(0.016)				
Member connected to the Finance Minister's circle (direct interlock)		-0.041			
		(0.028)			
Member connected to non-financial firms (direct interlock)			-0.013**		
			(0.005)		
Member connected to heavy industrial firms (direct interlock)				-0.022**	
				(0.010)	
Member connected to banks (direct interlock)					-0.024*
					(0.012)
Constant	-0.147***	-0.142***	-0.104***	-0.122***	-0.136***
	(0.029)	(0.024)	(0.029)	(0.025)	(0.025)
Observations	26	26	26	26	26
Adjusted R^2	-0.020	0.036	0.108	0.097	0.083

Robust standard errors in parentheses. Univariate model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Net investment losses 1899-1902, OLS model

	26	27	28	29	30
Member connected to the government (indirect interlock)	0.019				
	(0.036)				
Member connected to the Finance Minister's circle (indirect interlock)		0.065			
		(0.042)			
Member connected to non-financial firms (indirect interlock)			0.050*		
			(0.025)		
Member connected to heavy industrial firms (indirect interlock)				0.080**	
				(0.035)	
Member connected to banks (indirect interlock)					0.087**
					(0.038)
Baseline controls	✓	✓	✓	✓	✓
Constant	-0.005	-0.017	-0.027	-0.036	0.003
	(0.058)	(0.075)	(0.052)	(0.069)	(0.048)
Observations	39	39	39	39	39
Adjusted R^2	-0.032	0.113	0.158	0.190	0.224

Robust standard errors in parentheses. Baseline controls are bank age, number of locations, leverage, liquidity, asset growth, and board size.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Bank share price percentage change 1899, OLS model

	31	32	33	34	35
Member connected to the government (indirect interlock)	-0.033				
	(0.022)				
Member connected to the Finance Minister's circle (indirect interlock)		-0.058**			
		(0.023)			
Member connected to non-financial firms (indirect interlock)			-0.042*		
			(0.023)		
Member connected to heavy industrial firms (indirect interlock)				-0.058	
				(0.037)	
Member connected to banks (indirect interlock)					-0.081**
					(0.030)
Constant	-0.141***	-0.140***	-0.132***	-0.140***	-0.127***
	(0.023)	(0.020)	(0.023)	(0.021)	(0.021)
Observations	26	26	26	26	26
Adjusted R^2	0.028	0.103	0.094	0.078	0.158

Robust standard errors in parentheses. Univariate model.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Net investment losses 1899-1902, OLS model

	36	37	38	39	40
Share of board connected to the government	0.211				
	(0.195)				
Share of board connected to the Finance Minister's circle		0.545*			
		(0.282)			
Share of board connected to non-financial firms			0.184***		
			(0.047)		
Share of board connected to heavy industrial firms				0.371***	
				(0.089)	
Share of board connected to banks					0.251
					(0.192)
Baseline controls	✓	✓	✓	✓	✓
Constant	-0.016	-0.045	-0.051	-0.035	-0.015
	(0.072)	(0.083)	(0.055)	(0.062)	(0.058)
Observations	39	39	39	39	39
Adjusted R^2	0.010	0.189	0.272	0.369	0.049

Robust standard errors in parentheses. Baseline controls are bank age, number of locations, leverage, liquidity, asset growth, and board size.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Bank share price percentage change 1899, OLS model

	41	42	43	44	45
Share of board connected to the government	-0.257				
	(0.171)				
Share of board connected to the Finance Minister's circle		-0.531***			
		(0.171)			
Share of board connected to non-financial firms			-0.191***		
			(0.066)		
Share of board connected to heavy industrial firms				-0.294**	
				(0.128)	
Share of board connected to banks					-0.202
					(0.129)
Constant	-0.132***	-0.129***	-0.078**	-0.109***	-0.137***
	(0.028)	(0.022)	(0.030)	(0.027)	(0.028)
Observations	26	26	26	26	26
Adjusted R^2	0.038	0.143	0.172	0.155	0.020

Robust standard errors in parentheses. Univariate model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Net investment losses 1899-1902, OLS model

	46	47	48	49	50
Interlocks with the government	0.005				
	(0.010)				
Interlocks with the Finance Minister's circle		0.035*			
		(0.020)			
Interlocks with non-financial firms			0.008***		
			(0.002)		
Interlocks with heavy industrial firms				0.017***	
				(0.005)	
Interlocks with banks					0.015
					(0.013)
Baseline controls	✓	✓	✓	✓	✓
Constant	-0.005	-0.007	0.031	0.031	0.008
	(0.058)	(0.080)	(0.039)	(0.051)	(0.050)
Observations	39	39	39	39	39
Adjusted R^2	-0.038	0.175	0.491	0.382	0.028

Robust standard errors in parentheses. Baseline controls are bank age, number of locations, leverage, liquidity, asset growth, and board size.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: Bank share price percentage change 1899, OLS model

	51	52	53	54	55
Interlocks with the government	-0.009				
	(0.009)				
Interlocks with the Finance Minister's circle		-0.021*			
		(0.012)			
Interlocks with non-financial firms			-0.004***		
			(0.001)		
Interlocks with heavy industrial firms				-0.011***	
				(0.004)	
Interlocks with banks					-0.025**
					(0.009)
Constant	-0.143***	-0.141***	-0.103***	-0.113***	-0.126***
	(0.026)	(0.022)	(0.027)	(0.023)	(0.024)
Observations	26	26	26	26	26
Adjusted R^2	-0.001	0.044	0.195	0.194	0.156

Robust standard errors in parentheses. Univariate model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A14: Net investment losses 1899-1902, OLS model

	56	57	58	59	60	61	62
Member connected to the government	-0.007						
	(0.006)						
Member connected to the Finance Minister's circle		-0.008					
		(0.023)					
Member connected to non-financial firms			0.013***				
			(0.005)				
Member connected to heavy industrial firms				0.023***			
				(0.008)			
Member connected to banks					0.001		
					(0.006)		
Interaction	0.012***	0.012***	0.009***	0.007***	0.011***		
	(0.001)	(0.003)	(0.001)	(0.001)	(0.002)		
Baseline controls	✓	✓	✓	✓	✓	✓	✓
Member connected to gov./non-fin. firms						0.026	
						(0.023)	
Member connected to FM's circle/heavy industry							0.099**
							(0.039)
Constant	0.051	0.063	0.070*	0.052	0.061	0.032	0.024
	(0.042)	(0.045)	(0.040)	(0.049)	(0.047)	(0.054)	(0.071)
Observations	39	39	39	39	39	39	39
Adjusted R^2	0.557	0.545	0.656	0.648	0.544	0.048	0.372

Robust standard errors in parentheses. Baseline controls are bank age, locations, leverage, asset growth, and board size. Interaction term is member connected to the Finance Minister's circle * member connected to heavy industrial firms.

Member connected to gov.-non/fin. firms refers to a member simultaneously connected to the government and non-financial firms. Member connected to FM's circle/heavy industy refers to a member simultaneously connected to the Finance Minister's circle and heavy industrial firms.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A15: Net investment losses 1899-1902, OLS model

	63	64	65	66	67
Member connected to the government	-0.013**				
	(0.005)				
Member connected to the Finance Minister's circle		0.063***			
		(0.016)			
Member connected to non-financial firms			0.008**		
			(0.003)		
Member connected to heavy industrial firms				0.018***	
				(0.004)	
Member connected to banks					-0.002
					(0.006)
Baseline controls	✓	✓	✓	✓	✓
Constant	0.026	0.014	0.046	0.003	0.041
	(0.032)	(0.064)	(0.033)	(0.030)	(0.038)
Observations	39	39	39	39	39
Adjusted R^2	0.276	0.286	0.171	0.375	0.072

Robust standard errors in parentheses, calculated using iteratively reweighted least squares.

Baseline controls are bank age, number of locations, leverage, liquidity, asset growth, and board size.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A16: Bank share price percentage change 1899, OLS model

	68	69	70	71	72
Member connected to the government	-0.012				
	(0.012)				
Member connected to the Finance Minister's circle		-0.032*			
		(0.017)			
Member connected to non-financial firms			-0.014**		
			(0.006)		
Member connected to heavy industrial firms				-0.021*	
				(0.010)	
Member connected to banks					-0.030**
					(0.011)
Constant	-0.139***	-0.132***	-0.090**	-0.115***	-0.113***
	(0.027)	(0.024)	(0.036)	(0.029)	(0.023)
Observations	26	26	26	26	26
Adjusted R^2	0.002	0.088	0.132	0.112	0.207

Robust standard errors in parentheses, calculated using iteratively reweighted least squares. Univariate model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A17: Net investment losses 1899-1902, Tobit model

	73	74	75	76	77
Member connected to the government	0.010				
	(0.016)				
Member connected to the Finance Minister's circle		0.061***			
		(0.021)			
Member connected to non-financial firms			0.031***		
			(0.008)		
Member connected to heavy industrial firms				0.046***	
				(0.009)	
Member connected to banks					0.015
					(0.013)
Baseline contols	✓	✓	✓	✓	✓
Constant	-0.028	-0.001	0.012	0.002	-0.034
	(0.078)	(0.087)	(0.058)	(0.067)	(0.073)
Observations	39	39	39	39	39

Robust standard errors in parentheses. Baseline controls are bank age, number of locations, leverage, liquidity, asset growth, and board size. Dependent variable is zero for banks that made net investment profits over 1899-1902.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 2B

B1. Bank lending to industry

I calculate bank financing to joint-stock companies as a ratio of bank financing to all types of joint-stock companies, industrial and non-industrial, divided by the total amount of financing obtained by these companies by means of domestic and foreign banks, the State Bank, and company founders.

The calculation is based on the following figures. (1) 1,707 million rubles worth of corporate equity and bond securities were sold on domestic stock exchanges through Russian banks by the end of 1899 (Bovykin, 1894). (2) 911 million rubles worth of corporate equity and bond securities were sold on foreign stock exchanges through foreign banks by the end of 1899, with Russian banks facilitating and taking part in the placement of many of these securities (Bovykin, 1894). For the purpose of keeping the calculation as conservative as possible, I assume that none of these securities were placed with the help of Russian banks, which is a large understatement. (3) Russian banks' credit to all enterprises amounted 738 million rubles at the end of 1898, which is computed as the sum of bills discounted and call and term loans extended by banks (Golubev, 1898b). (4) The State Bank's credit to all enterprises amounted to 358 million rubles at the end of 1898, which is computed as the sum of the sum of bills discounted and rediscounted, call and term loans provided, and expenses made on the account of the Treasury (State Bank, 1899; RGIA, 587, 33, 98). (5) Foreign banks made loans to foreign companies operating in Russia. These amounts are not known and therefore assumed to be zero. These were likely not large in comparison to other industry financing because there were only 115 foreign-owned companies in operation in 1899, as compared to nearly 900 domestically-owned firms (Dmitriev-Mamonov, 1903). (6) Some of companies' initial capital stock was paid by company founders. These amounts

are not known, but are assumed to be 10 per cent of the total value of domestic and foreign equity and bond securities, or 262 million rubles.

B2. Government banking policy

B2.1. Government expectations

Given that it was paramount for Russia to industrialise, it is likely that the government expected the banking sector to finance industrial development. This was the second channel of government influence. However, there are several reasons to believe that the government's direct influence, assuming that it was indeed present, likely had a minimal impact on individual banks' lending and investment decisions.

The following studies point that this influence was no more than an expectation, and surely not a requirement, because authorities never explicitly instructed banks how to conduct their business and what sectors or individual companies to finance. A detailed study of financing deals of the St. Petersburg International Commercial Bank, a key banker to the government, found no evidence of the bank being exploited as an instrument of the state (Lebedev, 2003). Even Witte's closest alliance in the banking world, banker A. Rothstein from the aforementioned bank, dealt with the Minister on most competitive terms, rather than as a subordinate, when negotiating compensation for his bank for the placement of government bonds (Lebedev, 2003).

It is still possible that the government's expectation carried a considerable weight in affecting banks' decisions due to the fact that the Ministry of Finance was both banks' regulator and supervisor. For example, the ministry could decline a bank's petition to open a new branch or deprive a bank of its securities trading license by modifying its statute. This in effect would turn a non-invasive expectation into a powerful requirement. To address this issue, I examined banks' statutes between 1895

and 1898 and found that that no statute was curtailed.[27] There is also no indication based on an archival study of the ministry's policies towards banks that the ministry abused its regulatory power (Gindin, 1960).

It is also possible that the government had more leverage on the decisions of a small number of banks that were bankers to the government because these banks had lucrative government business to lose had they not fulfilled the expectation. I conclude that the government's expectation likely did have a meaningful impact on such banks.[28] However, given that heavy industrial firms were highly profitable and banks' profitability was never at an immediate risk, the question on how to balance industry financing without aggravating the relationship with authorities was probably not an issue that these bankers had to seriously deal with. As for the rest of banks, they were not bankers to the government, and thus they did not risk losing lucrative government business.

B2.2. The State Bank's policy

The third channel through which the government affected banks' decisions was the protectionist policy of the State Bank towards banks. I argue that this policy, too, had a minimal impact on inducing banks to finance industry.

It is known that the State Bank was highly protective of banks in times of stress ever since the first bank failure in 1875 (Gindin, 1960). Only nine banks were liquidated since the establishment of the first commercial bank in 1864 and the crisis of 1899-1902 (Gindin, 1960). Keeping banks stable was important for another reason: prior to the crisis, banks supplied well over half of total industry financing. Modern economists

[27] Banks' statutes are from the Complete Collection of Laws (1899a, 1899b, 1900, 1901).

[28] The extent to which each bank provided services to the government is not known, and therefore it is not possible to control for this factor in regressions.

point out that the banks that expect to receive a bailout tend to increase their risk-taking activities (Stern & Feldman, 2004).

If Russian banks were indeed counting on a bailout, then we should expect to see banks hastily extend new loans in the first months of the crisis in an attempt to tie themselves to industrial companies that were so important for industrialisation. To test whether such practice took place, I track the change in bank loans that were most indicative of heavy industry financing.[29] I find that the eight banks that were most likely to be bailed out by the State Bank, reduced their lending by 27 per cent on average between January and December 1899.[30] This suggests that these banks did not engage in last minute gambling for resurrection and, therefore, had not been counting on a bailout.

Furthermore, even in non-crisis times, the State Bank provided credit to nearly all banks and rediscounted their bills in order to facilitate them in the role of credit suppliers to the economy (Gindin, 1960). Thus, it is possible that the banks receiving greater amount of financial assistance from the State Bank on a constant basis were more inclined to engage in industry financing. To test whether such practice took place, I examine the allocation of State Bank loans among banks. In 1898, such loans amounted to only 6.1 per cent of banks' lending to the economy.[31] If these loans were evenly distributed among banks, then the effect of the State Bank can be considered insubstantial. I estimate that the majority of the State Bank's assistance went to banks in

[29] Namely, I calculate the change in term loans backed by corporate securities and call loans backed by government and corporate securities. Loan quantities are taken from Golubev (1898).

[30] I consider the banks that sustained ten per cent or greater investment portfolio losses over the crisis to be most likely bailed out.

[31] Bank credit data is from Golubev (1898). The State Bank's loans to banks are from the State Bank (1899).

the provinces.[32] This suggests that the impact of the State Bank's lending programmes was not that material because otherwise we would see provincial banks incur large losses during the crisis, but only four out of 25 provincial banks experienced sizable distress.

B3. The choice of dependent variables

I have chosen net investment losses and bank share price as my distress measures for four reasons. First, given that both measures were determined by stock market participants, these measures were least affected by banks' practice of fraudulently understating losses on income statements (Bovykin, 1984). Although banks did tend to overestimate their investment assets (Lebedev, 2003), there was a mandatory requirement to mark investment portfolios to market on an annual basis.[33] This mark-to-market requirement forced banks to sooner or later document investment losses during the three-year-long stock market downturn.

Second, net investment losses capture the reintermediation of collateral onto banks' balance sheets throughout the crisis as heavy industrial companies were defaulting on their loans to banks. As a result of this reintermediation, banks' portfolio holdings increased by an estimated 55 per cent between January and December 1899 alone.[34] Indeed, an annual report of the St. Petersburg International Commercial Bank (1901) documented the occurrence of this takeover of collateral. This massive

[32] As of December 1898, out of 46.3 million rubles of total assistance to banks, 10.8 million was distributed by the State Bank's St. Petersburg office (State Bank, 1899), which almost exclusively assisted banks based in St. Petersburg and Moscow (RGIA, 588, 1, 247; 588, 1, 277; 588, 1, 593), and 35.5 million was given out by Moscow and provincial offices, which lent to banks based in Moscow and across the country.

[33] The statute of each individual bank specified the annual mark-to-market requirement.

[34] Own estimation, calculated as the increase in corporate securities on banks' balance sheets, in a rapidly and constantly declining securities market.

reintermediation was one of the primary reasons why banks sustained heavy losses. Thus, by using net investment losses as a dependent variable, I am able to capture banks' involvement in heavy industry financing – exactly the type of data that would have been ideal for conducting analysis.

Third, both measures of distress were less affected by the substantial anti-crisis assistance provided by the State Bank to banks, as compared to other distress measures, such as net income. In particular, the share price variable was likely least affected because a state-funded investment fund, introduced to support the value of banking and industrial shares, began the acquisition of shares mainly in 1900, that is after the period over which the variable is calculated.[35]

Fourth, net investment losses, which are censored at zero for banks that made a net profit, are preferable over net investment profits, which would not be censored at zero. From archival evidence we known that some banks deemed it simply inappropriate to finance heavy industry and made net investment profits over the crisis, despite having an above-average number of board members connected to the government and the Finance Minister's circle (Gindin, 1958; Gindin, 1960).[36] Therefore, using net profits in regression analysis would not capture the true relationship between the presence of interlocks and bank distress.

[35] Although the investment fund was established as early as October 1899, it appears that it began acquiring large bundles of shares only in 1900. I determine this by using Bugrov's (2003) data on the composition of the fund's portfolio in February 1901 and the price for which the shares were acquired by the fund. I then match this price with the actual market price, drawn from Goetzmann et al. (n.d.b), to identify the month and year when the acquisitions were likely made. This reveals that the fund bought shares of 20 companies at some point in 1900 or later and of three companies in 1900 or possibly in 1899.

[36] The Moscow International Trade Bank and the Central-Asian Commercial Bank are some examples.

CHAPTER 3

‘All possible methods’:

saving the Russian financial system in the 1899-1902 crisis

3.1. Introduction

The monetary policy actions of the Federal Reserve during and after the financial crisis of 2007-09 have generated a vast debate on the appropriate ways for a central bank to allay a financial turmoil. One side has argued for limiting the Federal Reserve’s toolkit to a classical lender of last resort, asserting that the Fed’s ad hoc and interventionist actions were responsible for the severity of the crisis (Taylor, 2014). Opponents have urged for a more activist central bank policy, involving a multitude of tools at the Fed’s disposal (Bernanke, 2015). Given the presence of strong arguments on both sides of the debate, some economists have called for more research on this issue (Taylor, 2014).

In this chapter, I examine the response by the monetary authorities to a systemic financial crisis that took place in Russia between 1899 and 1902. Using hand-collected financial statements of the State Bank of Russia and archival records on its policy decisions, I analyze the rescue operations and their effects on the financial system and broader economy. In particular, I quantify the extent of each policy type employed by the State Bank and then review in detail individual policy measures, their evolution throughout the crisis, and the State Bank’s reasons behind the usage of each measure. Given the fact that the State Bank went beyond the classical lender of last resort prescriptions, I also examine the way the State Bank dealt with the potential moral hazard arising from its actions.

Over one century before the rescue of the financial system in 2007-09, the State Bank implemented a multifaceted approach in containing the crisis. The crisis resolution involved lender of last resort operations to financial institutions, acquisition of securities

from investors, lending to non-financial institutions, bailouts of financial firms, and provision of liquidity to personal stock investors. I am unaware of any other instance when this variety of rescue operations was put into effect other than during the latest global financial crisis. Thus, it is worthwhile to compare the State Bank's response to that of the Federal Reserve's, rather than to contemporary crises.[37] What makes the comparison more valuable is that, like the 2007-09 financial crisis, the Russian financial crisis was characterized by a crisis of confidence in market-traded securities issued by the private sector, a systemic shortage of both funding and market liquidity, and a highly interconnected banking system.

I find that the State Bank's multifaceted approach was successful in preserving price, employment, and financial stability. The evidence also suggests that the State Bank's crisis response is identical to the types of policies employed by the Federal Reserve over the recent financial crisis, as compared in detail later. These findings support the proponents of a more activist and multisided central bank approach to crisis management.

Secondly, I find that to mitigate the spread of moral hazard, the State Bank resorted to constructive ambiguity by allowing five banks, which represented 12 per cent of the banking system's assets, to fail during and shortly after the crisis. However, large banks were allowed to go bankrupt only towards the end of, or after, the crisis.

The findings of this chapter add to two strands of literature. First, this chapter augments the literature debating the appropriate methods for central banks to mitigate financial crises. The theoretical literature on how to best contain a crisis extends back to Thornton's writings in 1802 and Bagehot's dictum in 1873, and has been rapidly

[37]For example, during the Barings crisis of 1890, the Bank of England created a guarantee fund to bail out the troubled Barings Bank. This avoided the unfolding of a crisis (Turner, 2014). During the Norwegian crisis of 1899, the Norges Bank provided liquidity to solvent banks and assisted with orderly liquidation of insolvent banks (Gerdrup, 2003).

growing recently (BIS, 2014). The activist central bank policy undertaken in the latest financial crisis has been questioned by some economists. There have been strong calls for the return to the Bagehot's (1873) style lender of last response to a crisis (Taylor, 2014). The tangible consequences of these calls have been the restriction of the Federal Reserve's tools to combat future crises. For example, the Dodd-Frank Act limited the Fed's ability to conduct bailouts of individual financial institutions. On the other hand, there is a growing empirical literature on the benefits of lender of last resort programs that go beyond the classical prescription (Acharya et al., 2017; Del Negro et al., 2017) and unconventional facilities, such as quantitative easing (Belke et al., 2017), lending to non-financial institutions (Campbell et al., 2011), and bailouts (Bianchi, 2016). This chapter adds a historical perspective to this debate by documenting the effect of a unique crisis response that involved all of the aforementioned programmes, and thus supports the views of those arguing for a more interventionist response to a crisis.

Second, this chapter adds to a small literature documenting real-world cases of central bank response to major banking crises. Major banking crises are different from minor occurrences because they have a significant negative impact on the broader economy due to the disruption in credit supply (Diamond & Dybvig, 1983). A historical series of major banking crises have been created only for the U.S. and the U.K., with a total of 14 systemic episodes identified up to the 1930s (Jalil, 2015; Kenny et al., 2017). Well-documented crisis responses are available only for some of these episodes. This chapter thus supplements the very limited knowledge base on how to successfully contain a major crisis.

This chapter builds its arguments in the following sequence. Section 2 presents the institutional features of the State Bank and describes the financial crisis of 1899-1902. Section 3 quantifies the rescue efforts and macroeconomic outcomes. Section 4 documents individual rescue efforts in detail and compares them to modern theory and

methods of counteracting a crisis. Section 5 studies the way the State Bank mitigated moral hazard. Section 6 concludes.

3.2. The State Bank's mandate and objectives

The State Bank of the Russian Empire (hereinafter the Bank) was established in 1860. The Bank had a wide range of responsibilities. According to its pre-crisis statutes, the Bank was responsible for 'the alleviation of money flows, facilitation of domestic trade, industry, and agriculture by means of short-term credit, and the strengthening of the credit system' (Complete Collection of Laws, 1894, p. 411).[38] This meant that the Bank was ready to provide liquidity by discounting commercial bills, purchase and sell gold and silver, exchange coins for paper money, accept deposits, advance loans, and transact with government securities, among other operations (Slansky, 1910).

The financial stability function was not explicitly outlined in the Bank's mandate. However, the Bank did act as a lender of last resort on multiple occasions since the first bank failed under its watch in 1875, as discussed in a later section. The financial stability objective was for the first time officially formulated during the 1899-1902 crisis. In particular, the supplemental notes to the Bank's annual report for the year 1900 stated that the Bank 'must take measures to prevent a crisis, must not let an existing crisis develop, and must mitigate the effects of a crisis in the case it breaks out under the influence of external or internal causes' (Russian State Historical Archive (RGIA), collection 587, inventory 33, file 101, page 79). The notes continued that '(t)he State Bank should not hesitate when it comes to the scale of the cost of the full implementation of the difficult task that has come upon it; besides, in the form in which it is possible to provide *real* help' (RGIA, 587, 33, 101, 49). The Bank should, however, ensure that 'its expenses are well-collateralized' (RGIA, 587, 33, 101, 49), with

[38] Author's own translation, as in all other instances of text translated from the Russian language.

collateral demonstrating characteristics of ‘soundness and marketability’ (RGIA, 587, 33, 101, 49). The first public acknowledgement of the lender-of-last-resort function was made in the first year of the crisis in the official daily newspaper, in which it was stated that ‘(i)n those cases when the crisis affects well-run businesses, such businesses can benefit from the State Bank’s support, which the State Bank will provide within the limits of prudence’ (Bulletin of Finance, 1899, p. 260).

The mandate of the Bank did not obligate it to maximize employment. However, the Bank generally strove to maintain industrial employment out of the fear that layoffs would lead to wider social unrest (Gindin, 1950). The Bank also served as a banker to the government by conducting transactions on behalf of the Treasury. Finally, the Bank set interest rates on a variety of loans it offered to the public, which in effect served as floor interest rates on identical commercial loans. However, with regards to the rate on three-month bills, the Bank always kept this rate slightly above the identical rate set by the German Imperial Bank (RGIA, 587, 33, 101, 65).

The Bank was headed by a designated managing director, overseen by a council of officials, and its annual reports and its overall strategy were approved by the Government Senate. However, the Bank’s ultimate governor was the Minister of Finance. The sole owner of the Bank’s capital stock was the State Treasury, which itself was a department at the Ministry of Finance (Ministry of Finance, 2002). The Bank’s liabilities consisted mostly of the Treasury’s deposits and bank notes and coins (State Bank, 1899).

In 1893, the newly-appointed Minister of Finance, Sergei Witte, introduced new economic policies aimed at rapid industrialisation. The goal was to catch up with the already industrialised countries in Europe and make Russia great again on the world economic, political, and military arena (Gindin, 1957). To reassure foreign investors of the country’s creditworthiness, the Bank went on the gold standard in 1897. That meant

pegging its official interest rate, the rate on three-month bills, slightly above the rate set by the German Imperial Bank (RGIA, 587, 33, 101, 65). The Bank also made sure that the gold point, the point at which gold would automatically start flowing out of the country, was never reached by meeting all demand for foreign currency (RGIA, 587, 33, 101, 52. For this purpose, the Bank kept a large amount of gold on its current account with foreign banks, equivalent up to 4.7 per cent of its gold reserves.[39] In 1898, the Bank possessed 946 million rubles of gold reserves, the largest stock among central banks and Treasury departments in the world (Green, 1999).

In 1899, the Bank confronted a systemic financial crisis. Credit shortages in Europe forced foreign investors to curtail investments in Russian government bonds and industrial securities. This led to a stock market decline and major losses among heavy industrial companies, as private and later state demand for their products fell. Unable to call on their industrial loans without risking non-payment, banks had no other choice but to keep on financing their clients (Bovykin, 1984). Regulatory mark-to-market requirements forced banks to register large losses on their investment portfolios (Gindin, 1950). From official bank audits, we know that key banks were practically bankrupt or on the verge of collapse in the early stages of the crisis (Bovykin, 1984). As we saw in chapter 2, bank failures would have put an end to Russia's rapid industrialisation, as banks supplied over half of all industrial finance (Bovykin, 1967). However, the Bank coordinated a major policy response to prevent this from occurring, in the process sacrificing 32.5 per cent of its gold reserves, as examined in the next section.[40]

3.3. The rescue effort and macroeconomic outcomes

This section gives an overview and quantifies the extent of the policy employed by the Bank in combating the crisis.

[39] Calculated based on data from the State Bank (1899-1903).

[40] Gold reserves are calculated based on data from the State Bank (1899-1903).

3.3.1. Quantifying the scale of the rescue effort

The crisis containment package coordinated by the Bank consisted of five policy tools: (1) liquidity provision to financial institutions, including banks and non-banks, (2) liquidity provision to individual stock-market investors, (3) acquisition of securities from investors, (4) lending to non-financial institutions, and (5) emergency lending to specific financial institutions. To quantify the Bank's policy initiatives, I hand-collected cash-flow and balance-sheet data from the State Bank's annual reports for the years 1898-1902, which I found in the Russian State Library. To understand the motivation behind the Bank's policy measures, I went over all available archival records at the Russian State Historical Archive (RGIA) that pertains to the Bank's decisions and documented relevant material. To obtain additional information on the State Bank's actions, I read nearly all available books and dissertations written by contemporary and modern scholars concerning the State Bank.

Note that throughout this chapter, I rely primarily on cash flow rather than on balance sheet data when analyzing the Bank's rescue operations because the former measure is a better reflection of the degree of the Bank's assistance. For example, call loans backed by bills, as reported in end of year balance sheets in Panel B of Table 1, decreased between 1898 and 1900. However, if measured in the form of cash flows, Panel A of Table 1 reveals that call loans actually increased by 62.6 per cent over this period. I resort to balance sheet data only when cash flow data are not available.

Panel A of Table 1 reveals that lender-of-last-resort lending to banks came in six different forms: the rediscounting of banks' bills, direct lending via call and term loans, collateralized by bills and securities, and unconventional measures, including the reallocation of depositor accounts to banks and repo operations, with each of these measures discussed in detail in Section 5. Panel A of Table 1 also shows that in the first year of the crisis, which became fully evident only in the summer months of 1899, the

Table 1: Support to banks and investors

	1898	1899	1900	1901	1902
Panel A: Liquidity to banks, cash flows					
Rediscounting of banks' bills	106.0	213.3	238.3	230.0	193.4
Call loans backed by bills	145.2	283.1	460.3	468.4	364.7
Call loans backed by securities	42.0	54.8	100.4	165.4	97.7
Term loans backed by securities	17.8	21.0	21.0	20.1	16.9
Reallocation of current accounts		11.0	10.4	0.2	
Repo guarantees			20.3	10.1	7.9
Total	**310.9**	**583.2**	**850.8**	**894.2**	**680.5**
Change YOY		*88%*	*46%*	*5%*	*-24%*
Panel B: Liquidity to banks, balance sheets					
Rediscounting of banks' bills	17.3	34.1	39.3	29.2	33.4
Call loans backed by bills	10.0	17.5	17.4	24.3	15.1
Call loans backed by securities	5.7	4.3	15.2	26.1	15.2
Term loans back by securities	13.3	15.7	17.2	17.1	13.0
Reallocation of current accounts		19.6	9.2	9.0	9.0
Repo guarantees			20.3	30.4	38.2
Total	**46.3**	**91.1**	**118.6**	**136.0**	**123.9**
Change YOY		*97%*	*30%*	*15%*	*-9%*
Panel C: Liquidity to investors, cash flows					
Call loans to stock investors	75.7	123.6	149.6	156.7	143.2
Change YOY		*63%*	*21%*	*5%*	*-9%*
Panel D: Acquisition of securities, cash flows					
Red Cross Fund acquisitions (net)		1.4	5.1	0.5	-2.0
State Bank acquisitions (net)	5.5	22.0	-8.8	-4.2	9.0
Total	**5.5**	**23.4**	**-3.7**	**-3.7**	**7.0**

Notes: In millions of rubles. Annual cash flows, except for State Bank and Red Cross Fund acquisitions, which are net cash flows. End of year balance sheets.
Assumptions: Half of all term loans advanced by the State Bank were directed to commercial banks. All current accounts withdrawn from the State Bank by the public in 1899 onwards were deposited with commercial banks. Half of the total credit guaranteed by the State Bank via repo guarantees flowed to commercial banks.
Sources: See Appendix Table A1.

Bank nearly doubled its lending to banks as compared to the prior year, as measured by cash inflows to banks.[41] In the following two years, 1900 and 1901, the assistance was vigorously expanded by a further 51 per cent. To appreciate the extent of this assistance, we can see from the end-of-year balance sheet data in Table 2 that the Bank's lending to banks as a share of bank lending to the economy doubled from 6 to 12 per cent in the first year of the crisis in 1899 and peaked at 18 per cent at the height of the crisis in 1901.

Indeed, as the crisis progressed, the assistance to banks was gaining greater importance. Panel A of Table 3 shows that if in 1898, the funding provided to banks had made up 29 per cent of the total cash flows the Bank channeled to all enterprises, then in 1901 banks received as much as 36 per cent of the total. The Bank supported all major items on both the asset and liability side of banks' balance sheets, with the exception of banks' capital stock.

As a result, referring back to Table 2, banks were able to increase lending by 2.2 per cent between the end of 1898 and 1901. In 1902, when the crisis began to abate, banks expanded credit by a noteworthy 12.7 per cent.

Cumulatively, the lender-of-last-resort support to banks over the period of 1899-1902 totaled to 2,697 million rubles.[42] This was equivalent to 41 per cent of the government's revenues and 40.1 per cent of corporate profits over the same period.[43] In addition to providing backstop liquidity to all 40 banks, the Bank lent to 302 non-bank

[41] It was common practice for the Bank to lend to banks during non-crisis years in order to facilitate them in the role of credit suppliers to the economy (Gindin, 1960).

[42] Crisis-related assistance to banks is cash flows from the Bank for the years 1899-1902 minus cash flows to banks in the pre-crisis year of 1898.

[43] Data on government profits is from the Ministry of Finance (1899a, 1900a, 1901a). Data on corporate profits is from the Ministry of Finance (1905b).

Table 2: Bank credit supply to economy

	1898	1899	1900	1901	1902
Banks' credit supply to economy	738.8	734.2	744.0	755.0	850.7
Change YOY		*-1%*	*1%*	*1%*	*13%*
State Bank credit as a share of banks'	*6%*	*12%*	*16%*	*18%*	*15%*

Notes: In millions of rubles. End of year balance sheets.
Bank credit supply is the sum of discounting; call loans backed by bills, securities, and goods; term loans; and corporate securities owned by banks.
Sources: Golubev (1905, 1910).

Table 3: Support to non-financial enterprises

	1898	1899	1900	1901	1902
Panel A: Lending, cash flows					
State Bank credit supply to non-banks	775.9	1,207.8	1,393.9	1,614.2	1,322.0
Change YOY		*56%*	*15%*	*16%*	*-18%*
State Bank credit supply to banks	310.9	583.2	850.8	894.2	680.5
Total	**1,086.9**	**1,791.0**	**2,244.7**	**2,508.4**	**2,002.5**
Change YOY		*65%*	*25%*	*12%*	*-20%*
Credit to banks as a share of total	*29%*	*33%*	*38%*	*36%*	*34%*
Panel B: Acquisitions, cash flows					
Treasury acquisitions (net)	27.6	98.1	47.5	83.3	8.1
State Savings Branches acquisitions (net)			80.0	30.0	
Total	**27.6**	**98.1**	**127.5**	**113.3**	**8.1**
Change YOY		*255%*	*30%*	*-11%*	*-93%*

Notes: In millions of rubles. Annual cash flows.
Cash flow to all enterprises (Total) is the sum of discounting and rediscounting of bills and other paper, call loans backed by bills and securities, including those that were reported off-balance sheet, term loans back by securities, acquisitions of securities made by the Treasury and State Savings Branches, repo operations with foreign counterparties, and reallocation of current accounts to banks. Does not include call loans to individual investors or acquisitions of securities by the Red Cross Fund and the State Bank because these operations affected a broad spectrum of investors, not just enterprises.
Cash flow to banks is the sum of rediscounting of banks' bills, all types of call loans, term loans, reallocation of current accounts, and repo guarantees. State Bank supply to non-banks is the difference between the cash flow to all enterprises (Total) and the cash flow to banks.
Sources: See Appendix Table A1.

financial institutions, although at a much smaller scale, all in all supporting nearly two-thirds of financial institutions (RGIA, 587, 33, 101, 12).[44]

The second policy initiative employed by the Bank was the provision of liquidity directly to personal investors in the stock market in an attempt to forestall fire-sale losses. Panel C of Table 1 shows that between 1898 and 1901, the Bank increased the provision of call loans to investors by 107 per cent. Because a typical call loan financed 50 per cent of a security's purchase price (Dmitriev-Mamonov & Evzlin, 1916), the supply of call loans possibly avoided the liquidation of up to 161 million rubles worth of securities bought on margin between 1899 and 1901.[45] This amount equated to 9.9 per cent of the market capitalization of domestically-traded companies in 1900, assuming that only corporate equities were purchased this way.[46]

The third programme involved the acquisition of securities from investors. First, the Bank made purchases for its own account of government and mortgage securities in the secondary market. Panel D of Table 1 shows that although these purchases were not large, summing to a net of 18.0 million rubles over the crisis period, they nevertheless allowed investors to turn liquid assets into cash. Second, the Bank created an investment fund, which acquired shares of selected banks and industrial companies. Panel D of Table 1 shows that the fund bought only a net of 5.0 million rubles worth of securities over the crisis. However, its actions likely had a calming effect on the market, as will be discussed in detail below.

The Bank's fourth policy tool involved bypassing the banking system and lending directly to businesses. First, as shown in Panel A of Table 3, the Bank increased its lending to firms by 108 per cent between 1898 and the height of the crisis in 1901. Second, as shown in Panel B of Table 3, the Bank acted on behalf of the Treasury and

[44] The total number of financial institutions was 551 in 1899 (Golubev, 1899b).

[45] Calculated as the call loan provision in 1901 minus that in 1898 and multiplied by two.

[46] The market capitalization was 1,640 million rubles (Bovykin, 1984).

along with State Savings Branches purchased corporate bonds for which no buyers were found on the market.[47] These purchases were large, increasing by 310 per cent between 1898 and 1901.

The fifth policy operation involved emergency lending to specific troubled financial institutions to avoid systemwide consequences of their failure on the banking system and financial markets. In many cases, emergency lending was conducted via the so-called non-statutory loans, which violated the Bank's statute and required the Czar's personal approval in each case. For this reason, exact amounts are not known.[48] In 1900, only five banks received non-statutory call loans (RGIA, 588, 1, 510). A possible reason for resorting to non-statutory financing was because banks did not have legitimate collateral to obtain regular call or term loans. Importantly, non-statutory loans, just like term loans, were not purely for liquidity provision, because both were for longer maturities, and thus carried apparent credit risk.

On top of the efforts made by the Bank, the fiscal authorities have sought to ensure that railroad construction and state procurement of industrial products are maintained on pre-crisis levels (Gindin, 1996). Exact amounts are not known as state orders were placed by various ministries, rather than by the Bank. Nevertheless, public expenditures are estimated to be significant in size (Gindin, 1980), given that in the years leading up to the crisis, the government had procured up to 50 per cent of heavy industry output (Ozerov, 1905; Gindin, 1996). This was likely a critical element as history offers multiple cases when the lack of government expenditures during and following a financial crisis led to a prolonged recession and even depression (Crafts & Fearon, 2010; Stiglitz, 2013).

[47] State Savings Branches were popular financial institutions for making deposits among the general public.

[48] Officially titled 'loans on a special basis' (Gindin, 1950, p. 87), non-statutory loans were given out only to an estimated 35 to 40 financial and non-financial companies (RGIA, 587, 33, 32).

Notably, the crisis containment policies employed by the Bank over the 1899-1902 crisis were identical to the types of policies deployed by the Federal Reserve over the 2007-09 financial crisis. Table 4 compares the two crisis responses. The Fed's policy categories included: (1) liquidity provision to financial institutions, (2) acquisition of securities from investors, (3) lending to non-financial institutions, and (4) emergency lending to financial institutions (Bernanke, 2009). After a careful juxtaposition of the two policy responses, it is possible to conclude that the Bank's approach is very similar to that of the Fed's. The only policy category not employed by the Fed, but implemented by the Bank, was direct liquidity provision to personal stock investors, which was the Bank's way to support the precipitously declining stock market.

Table 4: Comparison of the Fed's and the State Bank's programs

	Federal Reserve, 2007-09	State Bank, 1899-1902
Liquidity provision to financial institutions	Yes[1]	Yes[1]
Acquisition of securities from investors	Yes[2]	Yes[2]
Lending to non-financial institutions	Yes[3]	Yes[3]
Emergency lending to financial institutions	Yes[4]	Yes[4]
Liquidity provision to personal investors	No	Yes[5]

Notes:
[1] The Fed's programs included the Discount window, the Term auction facility, currency swaps, the Primary dealer credit facility, and the Money market fund facility. For the State Bank's programs, see Panel A of Table 1.
[2] The Fed's acquisitions were large and included mostly agency-backed MBS, but also T-notes and bonds and agency debt. The acquisitions made by the State Bank and the Red Cross Fund were not large, as shown in Panel D of Table 1.
[3] The Fed's programs included the Commercial paper funding facility (3-month term) and the Term asset-based securities loan facility (3-5 year term). The State Bank's lending see in Panel A of Table 3. The State Bank's purchases of private debt directly from issuers see in Panel B of Table 3.
[4] In both cases, the goal was to preserve systemic stability. The Fed's programs included the creation of Maiden Lane I, II, III LLC (Bear Stearns and AIG rescues). For the State Bank's rescues, see Section 4.5 in text.
[5] Call loans to personal stock market investors.
Sources: The types of programs are from Bernanke (2009).

3.3.2. Macroeconomic outcomes

What were the outcomes of the rescue package? Figure 1 demonstrates that the Bank was successful in maintaining price stability, employment, and financial stability. The credit supply by joint-stock commercial banks declined and stayed below the pre-crisis level in 1899, 1900, and 1901. However, the peak to trough fall in credit supply of 6.0 percent was not dramatic, given the fact that part of the fall was due to a reduction of short-term loans to personal investors, not business.[49] The largely sustained credit supply allowed joint-stock businesses to keep on making investments in machinery, real estate, land, and other property throughout the crisis.[50] The mostly preserved transmission of credit and money to the broader economy also helped to keep aggregate and light industrial production expanding, which in turn allowed the employment level to increase in industry in aggregate and in light industry in particular.[51] Industrial growth was then reflected in the rise in GNP and in a moderate rise of 3.1 per cent in the consumer price index.[52] Key financial markets, including the stock, money, and mortgage market continued functioning without disruptions. As shown in Figure 2, corporate bond spreads did not rise much above 2.5 percent and did not approach anywhere near the levels seen in the Great Depression and the Great Recession, during which bond spreads rose above seven and six percent, respectively.[53]

On the other hand, the stock market fell by 45.4 per cent between February 1899 and December 1901, depositors ran on 23 out of 40 banks, three banks failed during the

[49] Calculated based on data from Golubev (1905, 1910).

[50] Calculated based on data from the Ministry of Finance (1905b).

[51] Industrial production and employment are from Borodkin (2011a, 2011b).

[52] GNP is from Gregory (2003). Consumer price index is from Borodkin (2011c).

[53] The Great Depression and Recession corporate spreads are from Duca & Murphy (2013).

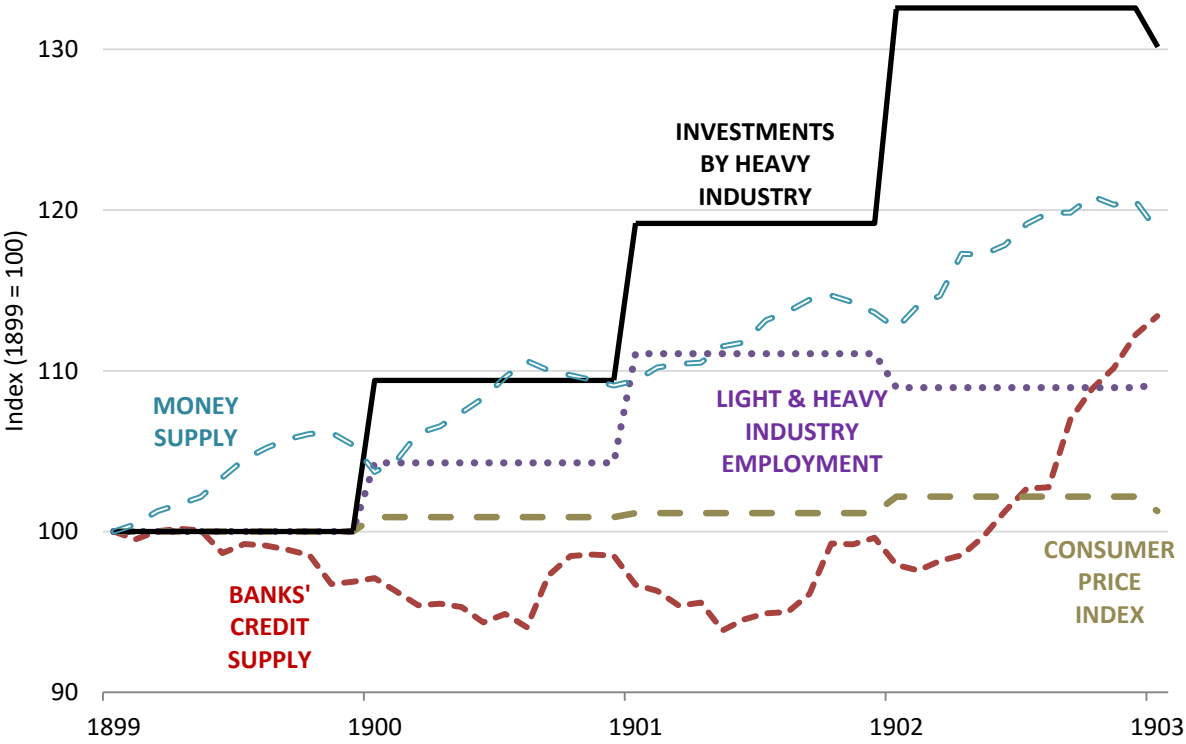

Figure 1. Key macroeconomic and financial indicators (index 1899 = 100), 1899-1903
Notes: Banks' credit supply, the stock exchange index, and the interest rate are on a monthly basis. Consumer price index, heavy and light industry employment, and investments by heavy industry are on a yearly basis. Total money supply includes deposits held by the public at the State Bank (based on original monthly data), the Russo-Chinese bank (interpolated linearly from beginning- and end-of-year data), joint-stock commercial banks (monthly data), private commercial banks (beginning- and end-of-year data), cooperative savings associations (interpolated linearly from semiannual data), as well as state savings branches, public city banks, credit partnerships, city banks, and savings and loan partnerships (all interpolated linearly from beginning- and end-of-year data), plus physical money.
Sources: Banks' credit supply is calculated based on data from Golubev (1905, 1910). Inflation is from Borodkin (2011c). Heavy and light industry employment is from Borodkin (2011a, 2011b). Investments by heavy industry are from the Ministry of Finance (1905). The stock exchange index is from Goetzmann et al. (n. d.a). The interest rate is from Bugrov (2000). Money supply is from the Ministry of Finance (1900-1907a).

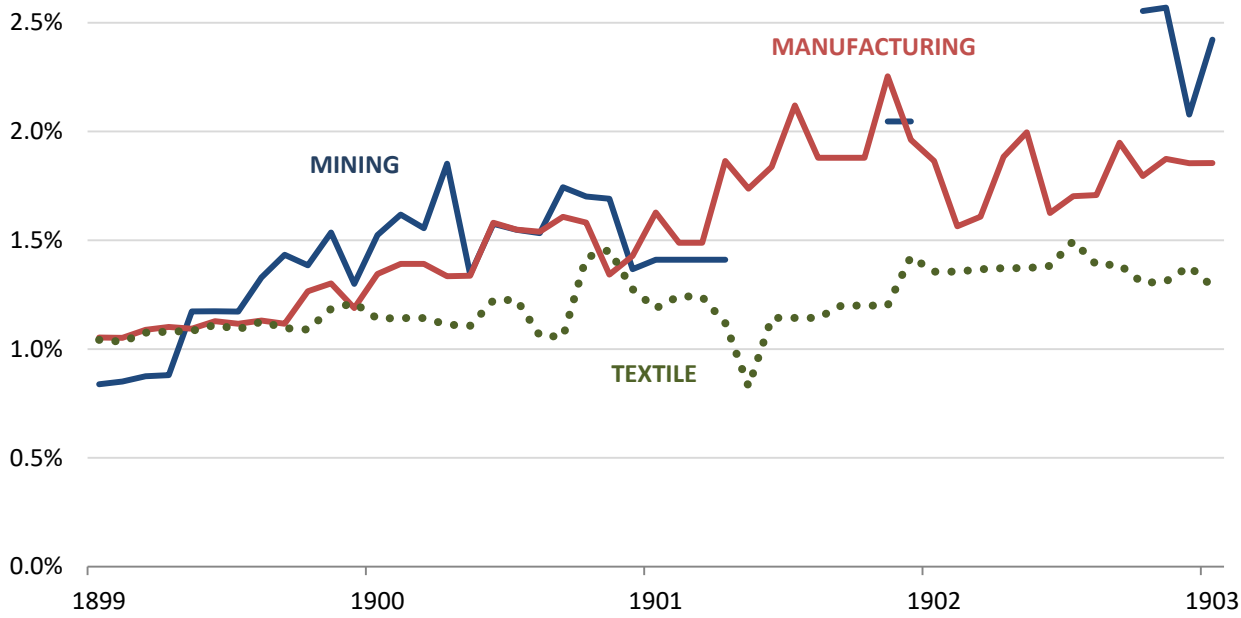

Figure 2. Monthly corporate bond risk premium by industry (in percent), 1899-1903
Notes: The corporate bond risk premium is the excess of current yield on corporate bonds of each of the three industries over the current yield of the highest-rated government security, the four percent Russian government bond of 1894. Current yield of each corporate bond is calculated based on price and coupon data of 37 individual bonds. Gaps in the series are due no trades in those months. Industry yield is the average yield of traded bonds in every month weighted by the outstanding amount of each bond.
Sources: Price and coupon data is from the Ministry of Finance (1900-1907b). The quantity of bonds outstanding is from Dmitriev-Mamonov (1903).

crisis and two went bankrupt in 1904.[54] Due to pre-crisis overproduction, deflation among raw materials, and the reduction of government procurement, heavy industry output declined by 7.7 per cent in 1901-02, and the industry's employment decreased by 6.4 per cent over 1900-02.[55]

Perhaps the best outcome measure is whether the rescue created a robust recovery. Although heavy industry production started to recover once the crisis was fully over in 1903, the industry's employment fell by another 2.5 per cent that year. Afterwards, there was a jobless growth in heavy industry.[56] More importantly, the number of labor strikes at industrial companies, which were reflective of the response of workers to working and living conditions, reached unprecedented new levels in 1903, turning into a full revolution in 1905 (Pushkareva et al., 2011). Altogether, despite the recession and employment losses in heavy industry, it can be said that the Bank was successful in achieving its official mandate of price stability and its unwritten goals of financial stability and overall employment growth.

3.4. The evolution of containment measures during the crisis

This section examines in detail the individual policy tools employed by the Bank in stabilizing the banking system and financial markets. Given that the Bank was successful in keeping inflation, employment, and the financial system stable, it is instructive to learn about the specifics of these tools to see why they were effective. This section also compares the extent to which the Bank's policy measures differed from modern methods of counteracting a crisis in an attempt to determine the elements that made the Bank's approach effective.

[54] I define a bank run as the net cumulative withdrawal of deposits over any one, two, or three consecutive years in the amount of 10 per cent or more. Banks' balance sheet data are from Golubev (1898, 1899, 1900, 1901, 1902). Stock market data is from Goetzmann et al. (n. d.a).

[55] Calculated based on Borodkin's (2011a, 2011b) data.

[56] Calculated based on Borodkin's (2011a, 2011b) data.

3.4.1. Liquidity provision to financial institutions

The Bank's frontline liquidity assistance was the rediscounting of banks' bills of exchange, as quantified in Panel A of Table 1. In the first months of the crisis, the Bank followed the real bills doctrine. Namely, from 30 June 1899, the Bank focused on discounting and rediscounting only trade-related, short-term bills (Collection of decrees, 1900). Less than four months later, in response to 'a sharp contraction in money markets' (RGIA, 587, 33, 101, 66), the Bank started accepting bills maturing in up to eight months. To better appreciate this step, recall that the Federal Reserve refused to deviate from the real bills doctrine in the 1930s, with severe implications for banks (Meltzer, 2003). The Bank also began to equally welcome bills based on tangible trade transactions and those related to purely financial arrangements, the so-called financial bills (RGIA, 587, 33, 101, 66). The acceptance of financial bills was especially beneficial for banks as they created these bills out of thin air and in exchange received borrowers' collateral that could be put to further use. Thereby, all 40 banks were rediscounting with the Bank from the early months of 1900 (RGIA, 587, 33, 101, 12).

The Bank also stimulated banks to restore credit flows to businesses by agreeing from 12 November 1899 to assume half of the losses incurred by banks on the bills they brought for rediscounting to the Bank (RGIA, 587, 56, 296, 24-26). The purpose of instituting this support was to ease 'the psychological side of the situation: distrust and fear' (RGIA, 587, 56, 296, 25) among banks towards less creditworthy clients, who otherwise would not be able to discount at banks.

Apart from rediscounting, the Bank extended short-term call loans and medium-term term loans, both collateralized by either bills or government and corporate securities, as shown in Panel A of Table 1.[57] This direct lending to banks was introduced because, according to the Bank's annual report for 1900, '(t)he (Bank's own) practice

[57] With call loans, the lender could request repayment at any time. Term loans followed a pre-defined repayment schedule.

has proven' (RGIA, 587, 33, 101, 48) that mere rediscounting does not 'alleviate the consequences of a crisis' (RGIA, 587, 33, 101, 48). In particular, the report explained that discounting of trade-related bills 'cannot alleviate an acute need for money' (RGIA, 587, 33, 101, 48) in a situation when the sale of products becomes problematic and goods are 'left unsold' (RGIA, 587, 33, 101, 48). Likewise, when a lender suddenly calls on a borrower's loan, and the borrower is forced to pay back immediately, rediscounting of trade-related bills is a futile activity (RGIA, 587, 33, 101, 48).

With this reasoning in mind, the Bank eased loan requirements as the crisis intensified. First, the Bank lengthened the duration for call loans from 50 days in 1899 to over 75 days in 1900 and 101 days in 1902. Bank also lengthened the duration for terms loans from 8 months in 1898 to 9 months in 1899 and then again to 10 months in 1900 (RGIA, 587, 33, 101, 70; RGIA, 587, 33, 102, 35). The granting of longer-term loans reduced funding pressures on banks. Second, on 11 June 1900, the Bank equalized interest rates it charged on call and term loans, making the previously more expensive call loans more attractive to borrowers (RGIA, 587, 33, 101, 57 & 69).

Third, the Bank narrowed the spread between the interest rate it charged on loans backed by longer-term 12-month bills and shorter-term three-month bills and loans backed by riskier corporate securities and safer government securities (Collection of decrees, 1899-1903). This made it less costly for banks to obtain credit backed by longer-term bills and riskier securities. Importantly, given that the gold standard regime did not allow the Bank to lower the interest rate on three-month bills below the rate set by the German Imperial Bank, the narrowing of spreads on other securities was the Bank's way of lowering interest rates. In fact, Figure 3 shows that right after the stock market crash in September 1899, the Bank cut the interest rate on its riskiest loans, those backed by corporate securities, to just 1.5 per cent above the interest rate on three-month bills.

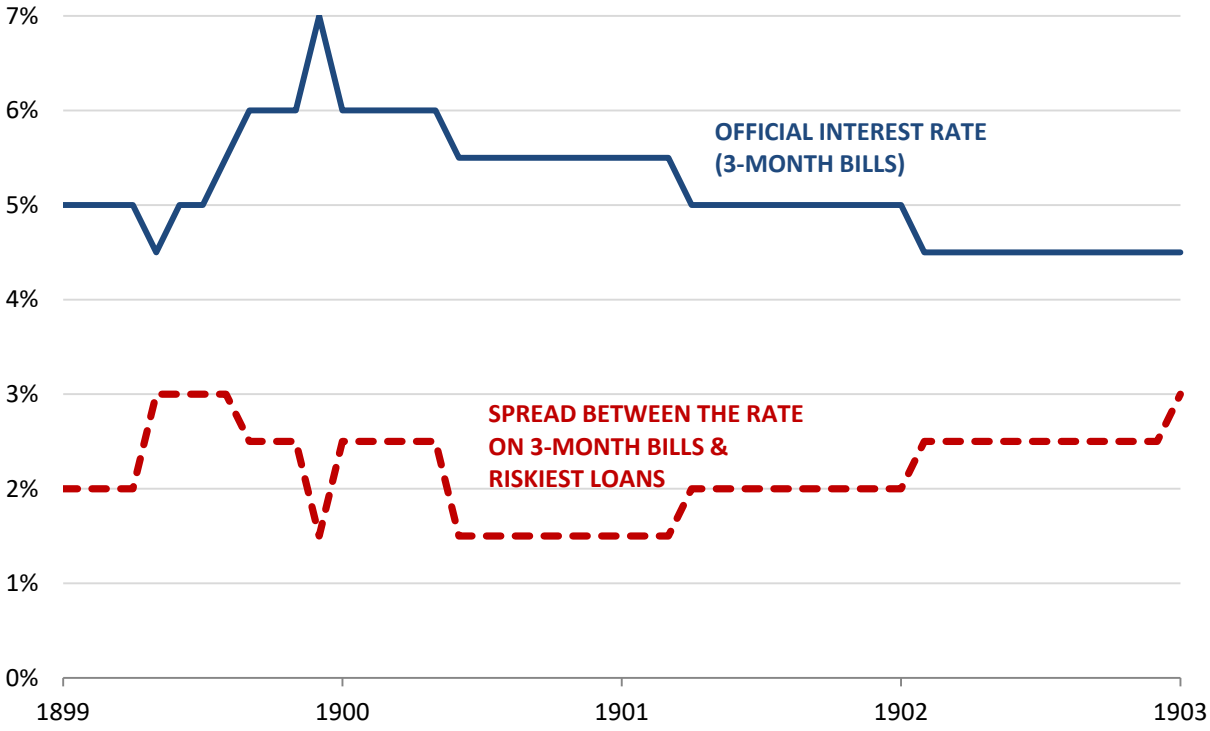

Figure 3. Key interest rates (in percent), 1899-1903
Sources: Bugrov (2000).

Fourth, as early as 17 April 1899, and then on 9 November 1899, Imperial directives gave the Bank the right to accept a wider range of corporate securities as adequate collateral for call and term loans (RGIA, 587, 33, 101, 57). The expanded list of securities included those that did not trade on the stock exchange and did not have a market value due to being rarely traded. As a result, a total of 243 government and corporate securities were acceptable via call and term loan facilities in 1900 (RGIA, 588, 1, 495, 3). In contrast, there were 428 equity and bond securities actively traded on Russian stock exchanges that same year, implying that the Bank accepted about half of traded collateral plus some that was not tradable.[58]

Fifth, the Bank eased haircut requirements.[59] In October 1900, State Bank applied a 50 and a 40 per cent haircut on equity and fixed income securities, respectively (Slansky, 1910). In May 1900, the requirements were eased to 40 and 25 per cent. From July 1900, the size of the haircut was reduced to 25 per cent for both types of securities (Gindin, 1980). Concessions on collateral requirements were especially valuable because they enabled banks to put to use highly burdensome equity and bond securities that were constantly declining in market value and that banks had to mark-to-marked on an annual basis (Complete Collection of Laws, 1871). In fact, the banking system's holdings of corporate securities abruptly increased by an estimated 55 per cent throughout 1899, because industrial clients were unable to repay loans to banks and because banks-underwriters could not find buyers for the securities they had contracted to sell.[60] Indeed, liquid collateral was an important element in credit creation. At the end of 1898, 27 per

[58] Equity securities data is from Goetzmann et al. (n.d.b). Government and corporate bond data is from the Ministry of Finance (1902b).

[59] A haircut is the share of a loan amount that the lender requires the borrower to pledge in order to obtain the loan.

[60] Own estimation, calculated as the increase in corporate securities on banks' balance sheets, in a rapidly and constantly declining securities market. Banks' balance sheet data is from Golubev (1899).

cent of all credit advanced by banks to businesses was collateralized by corporate equity and fixed income securities.[61]

Apart from rediscounting and granting call and term loans, the Bank undertook two unconventional liquidity provision measures, as displayed in Panel A of Table 1. First, on 22 November 1899, the Bank ceased paying interest on individual current accounts, in effect motivating the Bank's depositors to relocate their cash holdings to commercial banks (Migulin, 1904, p. 280). Because 23 out of 40 banks experienced acute retail and wholesale depositor runs, this innovative assistance allowed banks to replace the lost deposits with the same type of assets.

In the second unconventional step, from 22 December 1900, the Bank began insuring foreign banks that wished to lend to Russian banks and companies against foreign exchange risk. The Bank introduced repo operations through which it bought foreign currency in exchange for rubles for a set term. This operation eliminated all foreign exchange risk for foreign creditors, whereas domestic borrowers benefited from cheaper funding from abroad.

Scholars have long debated the liquidity provision method that is most suitable for stabilizing a banking system in a time of crisis. The classic view of Thornton and Bagehot (Thornton, 1802; Bagehot, 1873) is to lend freely to illiquid but solvent banks against collateral that is considered safe in ordinary times at the prevailing market interest rate. In theory, this should address systemic instability, but not necessarily prevent individual banks from failing. Alternatively, the New York Fed view (Salter, 2015), which is also attributed to Goodhart (1988), is to lend to illiquid and insolvent institutions on soft terms, such as unsound collateral and below-market rate of interest, to the extent necessary to keep credit flowing. Lastly, the Richmond Fed view (Tucker, 2014), which is also prescribed to Friedman and Schwartz (1963), Goodfriend and King

[61] Calculated based on banks' balance sheet data (Golubev, 1898).

(1988), and Schwartz (1992), is to lend to the market as a whole via open market operations rather than bilaterally.

Given that the Bank set soft terms on interest rates, duration, collateral, and haircuts, the Bank's liquidity provision most closely resembled that of the New York Fed's. Indeed, the Bank departed early on in the crisis from the classical prescriptions of Thornton and Bagehot because it observed that following these prescriptions would not be enough to meet banks' liquidity demand. This suggests that acting in line with the modern New York Fed's view was one of the elements that helped the Bank to address financial instability.

3.4.2. Liquidity provision to personal investors

The St. Petersburg stock market was irrevocably in decline from February 1899 until the end of 1901. One of the reasons for the precipitous downturn was because distressed banks, themselves in need of liquidity, reduced the provision of call loans to individual investors. As shown in Panel C of Table 1, to counteract the drying up of the market liquidity and prevent asset fire sales, the Bank expanded the supply of call loans directly to individual stock-market investors. Investors could then use the credit to meet margin calls from banks, dispose their equity positions in a more orderly manner, or even acquire new securities.

Do existing theories recommend a central bank to provide liquidity directly to personal investors? Liquidity shortages are known to be of two types. One is funding liquidity, or the ability to meet obligations when they are due. Another is market liquidity, or the ability to buy or sell a security in large amounts without moving its price by much. Declining market liquidity is typically associated with fewer transactions, investor uncertainty in valuing securities, and reduced ability of firms to issue new shares and thus obtain funding liquidity. The standard practice to restore deteriorating

market liquidity is to purchase assets from market participants, while at the same time providing funding liquidity to cash-constrained borrowers (Cecchetti & Disyatat, 2010). The Bank went beyond this practice by providing liquidity to personal investors. Indeed, the drying up to call market liquidity, or brokers' loans as they were called at the time, among personal investors is attributable to the stock market crash of 1929 in the U.S. (Crafts & Fearon, 2010). This suggests that the direct provision of liquidity to individual investors is a potentially efficient tool for reestablishing liquid stock markets.

3.4.3. Acquisition of securities

The precipitous stock-market decline and industrial losses undermined counterparties' confidence. To correct the misalignment in asset prices, on 20 October 1899, the Bank established an investment fund, unofficially called 'the stock exchange Red Cross' (Gindin, 1958, p. 41), for the purpose of 'prevent(ing) the unjustified decline in prices of equities circulating on the St. Petersburg stock exchange' (RGIA, 587, 56, 313, 1). In a memo motivating the formation of the fund, the Finance Minister Witte wrote that the danger posed by the unconstrained stock market decline is that it might lead not only to substantial losses among individual investors, but also to 'the undermining of confidence in enterprises themselves and even entire industries' (RGIA, 587, 56, 296, 10-12).

The Bank arranged for 11 commercial banks and four banking houses to become members of the fund.[62] Other banks that the Bank approached deemed the participation in the fund as too risky and thus abstained from joining (Gindin, 1958). The management of the fund was prescribed to a special committee, comprised of the members from four largest St. Petersburg banks and one banking house, and chaired by the Bank's managing director. The initial capital of 5.35 million rubles was advanced by the Bank, but other

[62] Banking houses were full-liability financial institutions that provided services similar to those offered by commercial banks, but on a smaller scale and for a less prominent clientele (Ananich, 1991).

members were liable for any losses incurred by the fund. If the fund made a profit, the first six per cent of the profit was allocated to the Bank, while the remaining 94 per cent was equally divided between all members of the syndicate (RGIA, 587, 56, 313, 3).

Panel D of Table 1 shows the fund's net purchases by year. The breakdown of the fund's portfolio is known only at one point in time. On 15 February 1902, the fund's portfolio was made up of shares of six banks, worth 20.0 per cent of the fund's portfolio, shares of 12 manufacturing companies, worth 64.1 per cent, and shares of five oil firms, representing remaining 15.9 per cent (Bugrov, 2002). With bankers dominating the fund's membership, it seems only natural that the fund delegated a good portion of its capital to banking shares. There is also some evidence that the remaining non-bank shares in the fund's portfolio were in fact issued by banks' corporate clients (Gindin, 1980, p. 116).

If the fund's purchases had any effect on the stock market, it was likely more psychological than material. Indeed, in the words of the Bank's managing director, E. Pleske, dating 11 December 1900, 'the mentality of the stock exchange … is highly sensitive to actions of the syndicate' (Gindin, 1980, p. 115). The Bank's director concluded that the fund 'have repeatedly served a big service to the stock exchange by avoiding the worst' (Gindin, 1980, p. 115). In addition to organizing the investment fund, the Bank intervened in asset markets by acquiring for its own account government and mortgage bonds in the secondary market, as shown in Panel D of Table 1.

Did the Bank's outright purchases and the orchestration of the fund conform to existing theories on how to restore counterparties' willingness to transact with each other? Confidence is one of the central elements of financial intermediation. Uncertainty about a bank's financial strength or even a rumour about its condition might spark retail, wholesale, or interbank runs, leading to the bank's failure (Freixas, 1999; Tucker, 2014). Uncertainty might also lead to runs on entire markets if the asset values of securities

traded in those markets come under doubt (Covitz et al., 2009). To mitigate the lack of confidence, a central bank can take the other side of private deals, replacing traders who are unwilling to trade by purchasing securities in the open market and thus signaling that the depressed valuations of previously-made deals are misplaced (Cecchetti & Disyatat, 2010). The purchases made by the investment fund and by the Bank are consistent with modern practices. Thus, the acquisition of securities by the fund and the Bank supports modern theories and practice on how to restore market confidence.

3.4.4. Lending to non-financial institutions

The fourth way policymakers mitigated financial instability was by lending directly to industry. As shown in Panel A of Table 3, such lending was greater than loans to banks. The Bank advanced statutory and non-statutory loans directly to industrial firms at eased collateral requirements, which allowed industrial companies, starting from 12 November 1899, to pledge their own unrealized bond issues for which no buyers were found. The Bank also discounted corporate bills at extended maturities (Collection of decrees, 1900). Panel B of Table 3 displays that the government also purchased of some of the larger bond issues of railroad and industrial companies for which no private buyers were found (RGIA, 587, 33, 101, 60 & 136; Gindin, 1950), hence providing further long-term funding to firms. By assisting industrial companies, the Bank supported banks indirectly. In fact, in some cases, the decision to support an industrial firm was motivated primarily or solely by the need to protect banks from losses (Gindin, 1950, 1980).[63]

Notice that unlike in the recent financial crisis, the Bank did not purchase that many assets of questionable quality from investors, including from banks. At the time, questionable assets were equity securities of and loans made to industrial companies. Instead, the Bank supported the value of industrial securities by means of liquidity

[63] For individual examples, see Gindin (1950, 1980).

provision to personal investors. Whereas fiscal authorities supported the performance of industrial companies by lending and government spending. Put differently, although banks retained assets of suspect quality on their balance sheets, the performance of these assets was buttressed by the government.

Should a central bank delegate greater assistance to industry or the banking sector during a crisis? The literature has not yet addressed this question empirically. Nevertheless, history shows that the lack of private and government demand is attributable to the protracted duration of the Great Depression in the 1930s and the slow recovery after the Great Recession (Crafts & Fearon, 2010; Stiglitz, 2013). The vast fiscal response to the 1899-1902 crisis suggests that aggregate demand is a critical part of successful crisis containment.

3.4.5. Emergency lending

In its final set of programmes, the Bank rescued individual financial institutions because of the concern that the failure of these entities would result in spillover and contagion effects on key market participants and entire financial markets, as detailed below.

In one case, the Bank supported a commercial bank to avoid negative repercussions on the money market and a knock-on effect on another large bank.[64] In the Bank's own words, the decision was motivated by the fact that '(t)he collapse of the bank could cause uneasiness in the money market and could in particular affect the Moscow International Trade Bank' (Petrov, 1998, p. 96). In another instance, the Bank maintained the viability of a banking house for the sake of safeguarding from losses four commercial banks, to which the banking house was heavily indebted (Gindin, 1950).[65] In yet another instance, the Bank was again concerned about spillover effects on a particular financial market and non-bank financial institutions. The Bank rescued a

[64] The rescued bank was the Commercial Bank in Kostroma.

[65] The banking house was the Banking House L. S. Polyakov.

mortgage bank to avoid its default on mortgage bonds.[66] This rescue safeguarded the mortgage market that investors had regarded as a safe haven because no mortgage bond had ever defaulted before. The rescue of the mortgage bank also allowed two non-bank financial institutions to avoid sizable losses (Ananich, 1991; Petrov, 1996).[67]

At the same time, the Bank seemingly understood the limits of financial interconnectedness when it withheld assistance from banks that were not heavily exposed to other financial institutions and whose failure would have only limited financial repercussions. In particular, in 1901, the Bank withdrew its assistance from two commercial banks that were in violation of their statues because they had delegated nearly all of their assets to financing a single industrial enterprise (Gertsenshtein, 1903).[68]

What do the Bank's actions tell about how to preserve the stability of a highly interconnected financial system? Cecchetti and Disyatat (2010) argue that the decision on whether to lend to a particular firm should be based on whether the firm's failure would undermine the stability of the entire financial system or certain financial markets as a result of contagion and spillover effects. The measure that determines if the firm is systemically important is the extent of its direct and indirect interconnection with counterparties (Liu & Quiet, 2015).

The Bank's actions suggest that it is worthwhile to preserve highly interconnected financial institutions during a crisis, but not necessarily afterwards, as will be discussed in detail in the next section. As the same time, the Bank's decisions point to the limited need in preserving financial institutions the failure of which would have localised consequences.

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[66] The mortgage bank was the Kharkiv Mortgage Bank.

[67] The non-bank financial institutions were the partnership of P. & B. Brothers Ryabushinsky and the Merchant Cooperative Savings Association.

[68] Banks' names were the Kharkov Trade and the Ekaterynoslavsky commercial banks.

3.5. Mitigating moral hazard

Going beyond Bagehot's principles might lead to heightened risk of moral hazard.[69] This section addresses the way the Bank mitigated this negative externality. The Bank was concerned with two types of moral hazard: (1) future risk-taking by banks in the knowledge that they would be rescued again and (2) banks gambling for resurrection at the beginning of the crisis.

3.5.1. Removal of fraudulent banks

One way the Bank counterbalanced the spread of moral hazard related to future risk-taking was by withdrawing assistance from most fraudulent banks and letting them fail. Although fraud, which I define as a major violation of a bank's statute, was not the only reason why the following banks were allowed to go bankrupt, it was nevertheless one of the key motivations that united these failures.[70] The Bank withdrew life support from five commercial banks, whose assets equated to 12 per cent of the banking system's assets in 1898, including two banks based in St. Petersburg and three in the provinces.[71]

[69] Bignon el al. (2011) show that the classical lender of last resort do not increase moral hazard.

[70] Another element that characterised the failed banks was the absence of bank board members connected to top government officials who were in close contact with the Finance Minister Witte. This implies that the failed banks did not have influential advocates who could convince the Bank in the need to preserve their stability. However, there were other banks that sustained large losses and which the Bank kept supporting despite the fact that these banks had no connections to top officials. This suggests that the absence of influential government connections was not the driving factor behind bank failures.

Data on personal connections and bank losses is taken from Chapter 2 that I use to calculate the difference in means. Results in Table A2 in Appendix reveal that failed and survivor banks are statistically significantly different when it comes to bank connections to top government officials.

[71] Bank assets are from Golubev (1898).

Two of these banks closed doors amidst the crisis in 1901, one in 1902 when the crisis was on decline, and two in 1904.[72]

Economists argue that one way a central bank can limit the spread of moral hazard is by providing support on a discretionary basis, a concept known as constructive ambiguity so that financial firms are not able to discern a rescue pattern. On the other hand, ambiguity in a crisis might only bring unfavorable outcomes, as it might undermine the already fragile confidence among counterparties (Cecchetti & Disyatat, 2010).

The fact that the Bank let multiple banks fail suggests that from the point of view of the remaining banks, the Bank acted ambiguously in its rescue operations. First, it was difficult for bankers to determine the exact reasons behind bank liquidations. Second, even if the bankers could come to a conclusion that fraud was the chief motive behind bank liquidations, it was still indeterminate what degree of fraud would cause the Bank to withdraw its assistance.

It is constructive to note that, in the midst of the crisis, the Bank let only those banks fail that had limited interdependency with the rest of the banking system, as they delegated most of their financing to just one enterprise and were not involved in syndicated loans or underwriting deals (Gertsenshtein, 1903). In the last year of the crisis, the Bank withdrew support from the 12th largest bank, as measured by total assets. This suggests that the Bank withheld assistance from larger banks only when most acute market turmoil had passed. The second way the Bank mitigated moral hazard

[72] The commercial banks' names were, respectively: the Kharkov Trade and the Ekaterynoslavsky, which were allowed to fail in 1901 because of the aforementioned reasons; the St. Petersburg-Azovcky and the St. Petersburg Muscovy, which failed in 1902 and 1904, respectively, because they were indebted beyond their statutory limits to the rescued Banking House L. S. Polyakov mentioned above; and the Commercial Bank in Kostroma, which closed doors in 1904 and was also related to the Banking House L. S. Polyakov. Bank names and failure dates are from Salomatina (2004).

related to future risk-taking was by requiring the assisted banks to accept on their boards at least one State Bank official (Gindin, 1960). This allowed authorities to directly oversee banks' operations and their risk-taking activities going forward.

3.5.2. Communication of the rescue policy

Modern central bank communication typically involves monetary policy messages and fiscal policy announcements (Allard et al., 2013). Rescue policy guidance is not commonly practiced.

To limit moral hazard arising from gambling for resurrection at the onset of the crisis, the Ministry of Finance addressed bankers openly in public and privately behind closed doors with precautionary announcements. In February 1899, the very first month of the stock market decline, the Finance Minister Witte gathered the presidents of St. Petersburg banks in his office and announced that the bankers 'must not expect any assistance from the State Bank, and if any bank gets in trouble because of the stock market speculation, I will not come to its rescue' (Lebedev, 2003, p. 389). These words were taken seriously by the bankers (Bovykin & Dyakonova, 1996).[73]

On 23 October 1899, one month after a major crash on the St. Petersburg stock market, the Ministry of Finance made another precautionary statement in the *Government Herald* and the *Bulletin of Finance*, both official, daily newspapers. The Ministry stated that 'the state and national assets are not an insurance capital for risky enterprises' (Gindin, 1950, p. 90), and that such enterprises should themselves be 'responsible for their mistakes, poor management, and bad luck' (Gindin, 1950, p. 90). In other words, authorities made it clear at the beginning of the crisis and again after a stock-market crash that the government would not assist banks engaged in speculative

[73] Indeed, the banker G. Spitzer, in his letter dating 20 March 1899, to A. Rothstein, a head banker at the St. Petersburg International Commercial Bank, wrote that Witte's announcements in February 1899 made a sensation in banking circles (Bovykin & Dyakonova, 1996).

trading activities or financing risky enterprises. The laying out of the rules of assistance was a step toward suppressing moral hazard. At the very least, Witte's announcements precluded banks from engaging in last minute gambling for resurrection. In addition to the positive side to Witte's announcements, there is also a possibility that the Finance Minister's statements undermined banks' confidence to lend. However, any negative effects of Witte's statements were likely counteracted by the concurrent support provided by the Bank, and this is confirmed by the positive trend in bank credit supply.

3.6. Conclusions

What should a central bank's approach be in arresting a financial panic? In this chapter has presented a case from the past of a central bank employing a multifaceted approach to containing a systemic financial crisis between 1899 and 1902. I have argued that price, employment, and financial stability were achieved because of the use of a broad spectrum of policy measures to combat the crisis. These findings suggest that there are economic advantages for a central bank to have multiple anti-crisis tools at its disposal.

In particular, the State Bank disregarded the standard policies of a lender of last resort and made its own rules on how to deal with a major financial crisis. According to these rules, a central bank 'should not hesitate when it comes to the scale of the cost of the full implementation of the difficult task that has come upon it; besides, in the form in which it is possible to provide *real* help' (RGIA, 587, 33, 101, 49). Indeed, the State Bank recognized that to attenuate a concurrent acute industrial crisis, the Imperial Bank of Germany merely discounted commercial bills (RGIA, 587, 33, 101, 47-48). In contrast, according to the recollection of the State Bank's managing director, A. Konshin, the State Bank employed 'all possible methods' in resolving the crisis (Efimkin & Spitsyn, 2006, p. 69). Indeed, the State Bank addressed every area in the financial system that experienced problems. Have central banks in Europe and the United States

learnt about the crisis resolution measures undertaken by the State Bank, perhaps the not-so-distant worldwide financial crisis of 1907 would have been largely mitigated.

Appendix 3A

Table A1: data source

Data	Source
To banks only:	
Rediscounting of banks' bills	RGIA (587, 33, 101, 75; 587, 33, 102, 33)
Rediscounting of banks' bills (balance sheets)	State Bank (1899-1903)
Call loans backed by bills	RGIA (587, 33, 101, 75 and 134; 587, 33, 102, 30)
Call loans backed by bills (balance sheets)	State Bank (1899-1903)
Call loans backed by securities	RGIA (587, 33, 101, 75; 587, 33, 102, 35)
Call loans backed by securities (balance sheets)	State Bank (1899-1903)
Term loans backed by securities	RGIA (1152, 13, 104, 251; 587, 33, 101, 69; 587, 33, 102, 35)
Term loans backed by securities (balance sheets)	State Bank (1899-1903)
Reallocation of current accounts	State Bank (1899-1903)
Repo guarantees	Slansky (1910)
To investors:	
Call loans to stock investors	State Bank (1899-1903)
Red Cross Fund acquisitions	Bugrov (2002)
State Bank acquisitions	RGIA (587, 33, 101, 130 and 147; 587, 33, 102, 40); State Bank (1899-1903)
To all enterprises, including banks:	
Discounting and rediscounting of bills	RGIA (1152, 13, 104, 241; 587, 33, 101, 66 and 138; 587, 33, 102, 29)
Discounting and rediscounting of other paper	RGIA (1152, 13, 104, 241; 587, 33, 101, 66 and 138; 587, 33, 102, 29)
Call loans backed by bills	RGIA (587, 33, 101, 57 and 133; 587, 33, 102, 29); State Bank (1899-1903)
Call loans backed by securities	RGIA (1152, 13, 104, 252; 587, 33, 101, 68; 587, 33, 102, 29); State Bank (1899-1903)
Term loans backed by securities	RGIA (1152, 13, 104, 251; 587, 33, 101, 68; 587, 33, 102, 35)
Repo guarantees	Slansky (1910)
Term loans backed by merchandise	State Bank (1899-1903)
Term loans to agricultural sector	State Bank (1899-1903)
Term loans to industrial enterprises	State Bank (1899-1903)
Term loans to railroad companies	State Bank (1899-1903)
Reallocation of current accounts	State Bank (1899-1903)
Treasury acquisitions	RGIA (587, 33, 101, 60 and 136; 587, 33, 102, 30); State Bank (1899-1903)
State Savings Branches acquisitions	Gindin (1950)

Notes: Cash flows, unless otherwise specified.

Table A2: Difference in means: failed versus saved banks

	1	2
Member connected to the government	-0.953**	
	(0.452)	
Member connected to the Finance Minister's circle		-0.618***
		(0.194)
Observations	39	39
Adjusted R^2		

Standard errors in parentheses. Difference in means calculated for either equal or unequal variances.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

CHAPTER 4

From financial crisis to revolution: Russia 1899-1905

> '(T)he exacerbation of the economic needs of the proletariat' was '(t)he root source and the most important basis for the entire upcoming revolutionary crisis in Russia'[74]
>
> Lenin (1972, p. 9)

4.1. Introduction

Recent scholarship has established that financial crises lead to social unrest and unexpected voter decisions in elections (Funke et al., 2016). However, the mechanisms that give rise to social and political sea change remain debatable. The standard view has been that crisis-induced economic shocks, such as the loss of employment, a stock market downturn, inflation, or disinflation, reduce households' income and net worth, compelling them to seek changes (DiPasquale & Glaeser, 1998; Brender & Drazen, 2008; De Bromhead et al., 2013; Lindgren & Vernby, 2016).[75] A less common view has been that the unequal response by the government to a crisis, as in bailing out banks using taxpayer money, can benefit some citizens at the expense of others, in what is known as the distributional effect (Halac & Schmukler, 2004; Stiglitz, 2013). The economically disadvantaged then express their views at the polls or on the streets. This chapter turns to the case of the Russian Revolution of 1905, a period of nationwide worker unrest that occurred just two-and-a-half years following the conclusion of a major financial crisis, in an effort to bring new evidence to this debate. The 1905 revolution is unique because when organizing labour strikes in the years leading up to

[74] Author's own translation, as in all other instances of text translated from the Russian language.

[75] For a literature review of economic effects of financial crises on citizens, see Jayadev (2013).

1905, workers called for improvements in their living and working conditions, not for the elimination of the Czarist autocracy. This allows me to study how mostly material and apolitical demands by citizens led to social instability.

In this chapter, I examine (1) the immediate effect of the Russian financial crisis of 1899-1902 on key participants in the economy – that is banks, industry, and the government, and (2) how these participants then responded to the crisis and in the process affected the fourth key group in the economy: the working class. For that, I collected aggregate-level data on the economic performance, such as industry profits and worker salaries, of the four aforementioned participants. My primary data source is a series of yearbooks published by the Russian Ministry of Finance, which I found in the Russian State Library. Remarkably, previous researches have barely used this source before. I also pool together economic data sourced from a variety of secondary sources, along with non-economic data, such as the number of labour strikes before the revolution. In relation to secondary sources, Russian historians often collect and describe data, but do not attempt to explicitly use economic theory and quantitative methods to draw causal connections between different variables. My contribution in regards to secondary material is to synthesize several existing datasets and draw new conclusions relying on cliometric analysis. Finally, I obtain narrative evidence to identify how and why the economic participants responded to the crisis in the manner they did.

My main finding is that the response to the crisis by the government transferred income and wealth from ordinary workers to industrialists and investors. Unsurprisingly, the recipients of transfers weathered the crisis well and profited during the recovery, whereas workers' wages and wealth stagnated. The evidence also suggests that industry forced the workforce to either labour longer hours or labour more intensively, thus exacerbating their physical well-being. The extant literature has established that workers' poor working and living conditions were the central reason behind the occurrence of

labour strikes (Korelin et al., 2005). In light of this fact, my findings suggest that seeing their material and physical well-being lag behind or deteriorate, workers likely became more prone to go on strikes.

This study augments the literature arguing that the unequal response to a financial crisis by the government can lead to financial redistributions among various groups of citizens. In particular, Halac & Schmukler (2004) show that public bailouts of banks in five Latin American countries in the 1880s, 1990s, and early 2000s led to the redistribution of wealth from regular taxpayers to banks and their clients. Callan et al. (2011) show that austerity measures introduced in response to the 2007-09 financial crisis in six countries in Europe redistributed income among the citizens.

The findings of my chapter are also consistent with studies that relate government actions directly to social unrest. In particular, Stiglitz (2013) argues that the unequal response of American authorities to the 2007-09 financial crisis was the source for the social movement against large banks and corporations that started in 2011. Finally, my chapter relates to the study by Ponticelli & Voth (2011) who find that discretionary budget cuts that were not crisis-related, led to heightened social turmoil over the past century in Europe, without examining what the transmission channel was. The unique contribution of my chapter is that it shows that the response to the crisis by economic participants other than the government can also have regressive consequences.

This study also augments to the historical literature on the causes of the Russian Revolution of 1905, which brought the first fractures to an autocratic regime that had existed for hundreds of years. Although an enormous research effort has been expended on identifying a complete list of causes of the revolution, only two historians, Gefter (1953, 1955) and Gindin (1950), in addition to contemporaries, such as Lenin (1963, 1967, 1969, 1972), have explored the role of the financial crisis of 1899-1902 and the crisis containment by the government as contributing factors to the revolutionary

movement. This chapter investigates the role of the government response using a wider range of data than employed previously, provides evidence that the actions by industry and banks also had a negative impact on the working class, and, as a result, adds more weight to the view that the crisis response and its distributional consequences contributed to the revolution.

This chapter builds its arguments in the following sequence. Section 4.2 details key causes and effects of the Revolution of 1905. Section 4.3 documents the effects of the financial crisis of 1899-1902 on key economic participants, including banks, industry, and the government, and their immediate responses to the crisis. Section 4.4 traces the way these participants affected the remaining key group, the working class. Section 4.5 concludes.

4.2. The Revolution of 1905

The First Russian Revolution began on the 9th of January 1905, when over 140,000 factory workers marched towards the Winter Palace in St. Petersburg to deliver a petition to the Czar, asking him to alleviate their hardships (Vvedensky, 1952). The workers made 17 demands, including the declaration of freedom of speech, press, assembly, religion, and the inviolability of the person, the introduction of an eight-hour workday, limits on overtime work, and adequate pay (Gapon, 1905). The Czarist government responded by sending troops to stop the demonstrators. The day ended with an estimated 200 protestor deaths (Nevsky, 1922). In the next several months, 90 per cent of factories were engulfed in strikes, peasants revolted all across the country, army units positioned along the Trans-Siberian Railroad refused to obey orders, and the crew of the battleship Potemkin, one of the largest military ships on the Black Sea, mutinied (Korelin et al., 2005). Industry workers not only initiated the revolution, but were also the last group to

stop fighting for their demands in June 1907, when the revolution officially ended (Korelin et al., 2005).

Scholars have expended an enormous amount of effort on studying the causes of the revolution. The central reason has been identified as unacceptable living and working conditions of workers: penniless wages, long work hours, overtime work, unfair job-related fines, cruel treatment by supervisors, unauthorized home searches by police, unsanitary housing conditions, which led to serious illnesses, and the lack of social insurance (Korelin et al., 2005). The second element that contributed to the revolutionary movement was advances in the literacy and education of workers, which allowed them to become more aware of their deplorable life and political lawlessness (Korelin et al., 2005). Third, illegal political parties and worker organizations expanded worker awareness and helped them formulate their demands (Korelin et al., 2005). Fourth, the ruthless suppression by police and military forces of any expression of discontent and unmerciful government policies toward workers in general (Korelin et al., 2005). Finally, the fifth explanation and the focus of my study, was that the revolution was partially a consequence of the 1899-1902, the 1901-02 recession in heavy industry, and crisis containment policies undertaken by the government (Gefter, 1953, 1955; Gindin, 1950).

A unique feature of the period leading up to the revolution was that it was a struggle for better material conditions and democratic rights. Workers did not pursue the impeachment of the Czar or the change of the social order to socialism. In fact, in the minds of workers, the figure of the monarch was not associated with the government and repressive state policies (Korelin et al., 2005). Even on the eve of the revolution, workers who said anything against the Czar were quickly muted by others. The word socialism was regarded as profanity among the working class. Illegal political parties and worker organizations focused on disseminating ideas of democratic rights and material betterment and seldom touched on the topic of socialism (Pushkareva et al., 2005).

Indeed, only a small number of strikes were associated with political demands and slogans such as ‘Down with autocracy!’, ‘Down with the government!’, and ‘Long live socialism!’ (Pushkareva et al., 2011, p. 106). In 1903, the most rebellious year before the revolution, the percentage of workers who put forward political demands was only 8.5 per cent of the total strikers (Pushkareva et al., 2011). The remaining 91.5 per cent had purely economic wishes, expressed by slogans such as ‘An 8-hour working day!’ and ‘Down with fines!’ (Pushkareva et al., 2011, p. 110).

Unlike industry workers, peasants, who constituted 77.1 percent of Russia’s population in 1897 (Rubakin, 1912), were not a major force behind social unrest before the revolution. Between 1900 and 1904, agricultural workers organized 619 protests, which were two-and-a-half times more than the number of protests over the previous four decades (Anfimov, 1998). The increase in protests was driven by poor harvests in 1899 and 1901, unemployed industry workers returning home to villages, and most importantly by intensified conflicts with landowners due to poorly-designed agricultural policies (Korelin et al., 2005). However, because the absolute number of protestors constituted only a small share of the total peasant population, peasant uprisings did not become a real threat to the Czarist government until 1905 (Korelin et al., 2005).

One of the key outcomes of the revolution was the signing of the October Manifesto in October 1905, which gave the Russian people the freedoms that workers had asked for in their petition to the Czar earlier that year. Another key outcome was the establishment of the State Duma, a legislative body comprised of popularly-elected members, without whose approval no law could be passed from that time on. These changes transformed the nation from an absolute autocracy to a constitutional monarchy and served as a foundation for the second Russian Revolution of 1917 – a ground-breaking achievement given the 450-year history of an absolute autocracy in Russia (Korelin et al., 2005).

4.3. The effect of and responses to the financial crisis

This section documents the effects of the financial crisis of 1899-1902 on key participants in the economy – namely, banks, companies, and the government – and their responses to the crisis. To quantify the effect of the financial crisis on economic participants, I hand-collected aggregate-level data on the economic performance of the aforementioned participants from individual *Yearbooks of the Ministry of Finance*. I collected monthly-, quarterly-, biannual-, and annual-frequency data, whichever was available. I then digitized these data and created time series for analysis and visual presentation. The novelty of these data is that it allows me to take a macro view on the economic conditions of each participant to see how each group was affected by the crisis.

I also use additional economic data, as well as non-economic data, such as the number of work-related casualties, that I collect from a variety of secondary sources compiled by Russian historians. Typically, Russian historians collect and package data in statistical tables, describe the overall trends they seen in the data, but abstain from deeper cliometric analysis. My contribution is to pool together data scattered around secondary sources and then analyze it through a quantitative and economic perspective. I also obtain narrative evidence to identify how and why the economic participants responded to the crisis in the manner they did.

4.3.1. Banking distress and banks' response

The financial crisis of 1899-1902 interrupted the rapid industrialisation that Russia was undergoing in the 1890s. The crisis was triggered by the reduction in foreign capital inflow into government bonds and securities of industrial enterprises. One of the first participants in the economy to be affected by the crisis was the banking sector. Figure 1 shows that bank shares fell more rapidly and steeper than the index of the St. Petersburg

stock exchange, which itself declined by 45.4 per cent between February 1899 and the end of 1901.[76] Banks experienced large losses primarily because of the investments they had made in the 1890s in heavy industrial companies. Although there were only five bank failures thanks to the vast intervention on the part of the government, official audits revealed that key banks were practically bankrupt or on the verge of collapse (Bovykin, 1984). To prevent a full-scale banking crisis, the authorities intervened with a massive rescue package (Gindin, 1950, 1980). The rescue was very successful along certain dimensions. To demonstrate that, I construct monthly credit and money supply time series based on data from the *Yearbooks* of the Ministry of Finance. Figure 2 shows that private credit supply fell only by 2.5 per cent from peak in May 1899 to trough in June 1900. Figure 2 also shows that government credit supply, as represented mostly by the credit supply by the quasi-central State Bank of Russia, also continued on an upward trend. Figure 3 reveals that the total money supply did not experience much deviation from its upward direction, with the largest peak-to-trough decline of only 3.7 per cent. In sum, the vast rescue package prevented the contraction of the credit and money supply, which are both essential for sustained performance in the broader economy (Friedman & Schwartz, 1963; Bernanke, 1983).

[76] Calculated based on data from Goetzmann et al. (n. d.a).

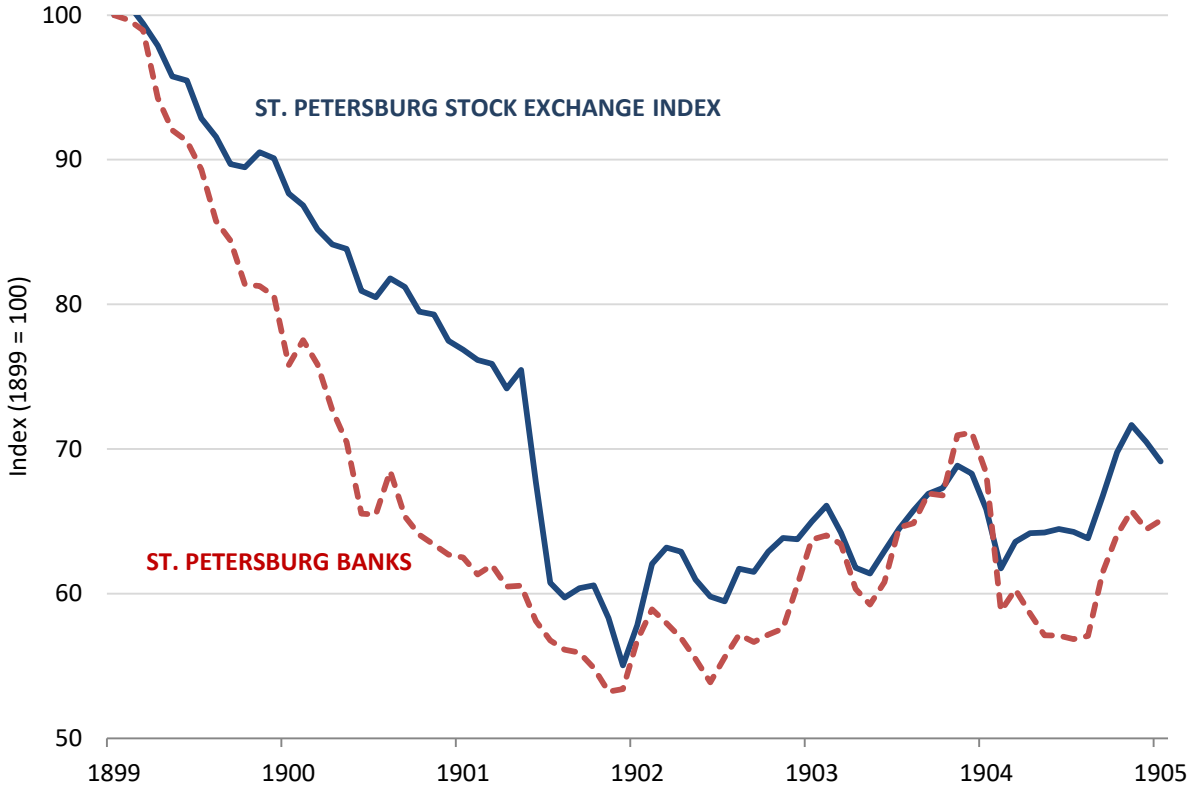

Figure 1. Monthly indices of the St. Petersburg Stock Exchange and commercial banks headquartered in St. Petersburg, equally weighted (index 1898 = 100), 1898-1905
Notes: Included in the index of St. Petersburg banks are the Volzhsko-Kamsky, St. Petersburg-Azovcky, St. Petersburg International, St. Petersburg Muscovy, St. Petersburg Private, Russian for Trade and Commerce commercial banks, as well as the Russian for Foreign Trade and the St. Petersburg Discount and Loan banks. The following banks were not included in the index: the Bank Credit Lyonnais because it did not trade on Russian stock exchanges and the Russo-Chinese Bank because they did not engage in engage in heavy industry financing.
Sources: The St. Petersburg Stock Exchange data is from Goetzmann et al. (n. d.a) and St. Petersburg banks stock data is from Goetzmann et al. (n. d.b)

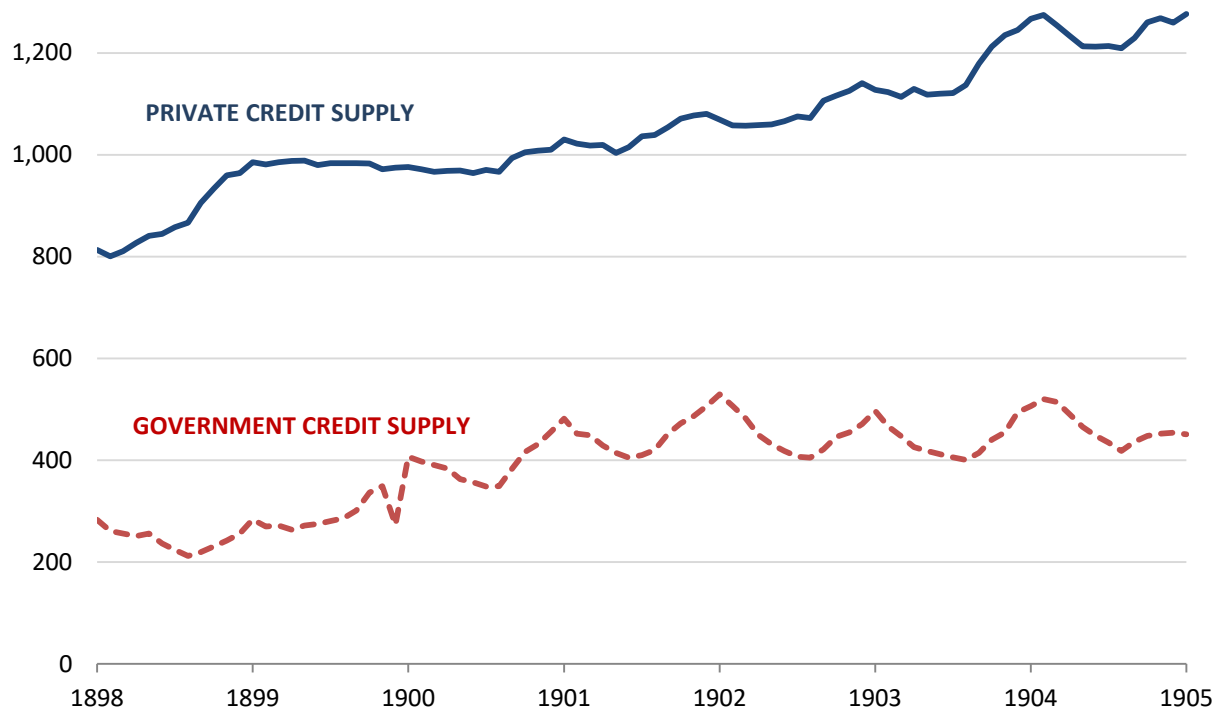

Figure 2. Monthly credit supply (in millions of rubles), 1898-1905
Notes: Private credit supply includes credit supplied by joint-stock commercial banks (based on original monthly data), private commercial banks (interpolated linearly from beginning- and end-of-year data), and cooperative savings associations (interpolated linearly from semiannual data). Government credit supply includes credit supplied by the State Bank (monthly data) and the Russo-Chinese Bank that was partially owned by the government (beginning- and end-of-year data).
Sources: The Ministry of Finance (1900-1907a)

However, underneath the positive aggregate trends, banks' lending patterns were changing. Banks concluded that the failure of large clients would be too detrimental for banks to withstand. Under crisis pressures, banks sustained or even increased lending to larger clients while curtailing credit to smaller clientele (Bovykin, 1984). Any remaining credit capacity banks rationed to most creditworthy borrowers (Bovykin, 1984). Two factors can explain this bank behaviour. First, information asymmetry intensified between banks and potential new borrowers as equity collateral that companies pledged to obtain loans declined in value due to the precipitous stock market decline. The theoretical mechanism behind this process was described by Mishkin (1991). Second, banks became more cautious in their lending, due to accumulating non-performing loans, investment portfolio losses, and reduced funding from foreign counterparties, a process known as a 'flight to quality' (Bernanke et al., 1996, p.1).

Banks' response to the financial crisis, as manifested in their changing lending behaviour, created winners and losers among companies. Indeed, between 1901 and 1904, large industrial enterprises, as measured by capital stock, performed increasingly better financially, while smaller firms declined over the same period (Bovykin, 1984). As is often the case, it is the companies with better financial backing that are able to weather a crisis, not necessarily the most efficient firms (Franklin, et al., 2015; Hilt, 2017).

The getting ahead of large companies had real consequences on workers. Research in modern economics indicates that larger companies have stronger bargaining power over their employees than do perfectly competitive firms (Trigari & Rotemberg, 2006). Indeed, Lenin observed that during a financial crisis 'weak capitalists, the capitalists of the 'second magnitude', are replaced by more solid millionaires ... who, as wealthier in capital, will weight even greater upon the worker' (Lenin, 1967, p. 85). At

the same time, workers had weak bargaining power because there were no legal labour unions until 1903 (Vvedensky, 1956). Only factory inspectors, who oversaw industry

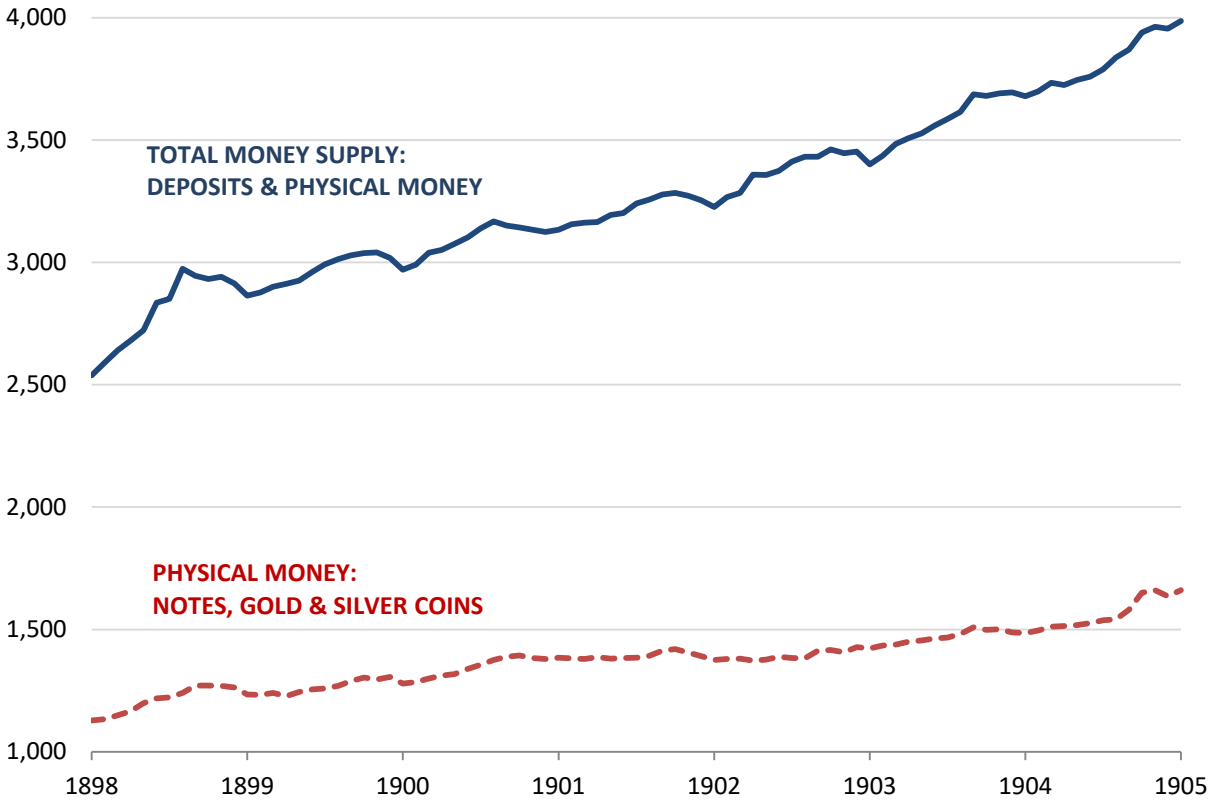

Figure 3. Monthly money supply (in millions of rubles), 1898-1905
Notes: Total money supply includes deposits held by the public at the State Bank (based on original monthly data), the Russo-Chinese bank (interpolated linearly from beginning- and end-of-year data), joint-stock commercial banks (monthly data), private commercial banks (beginning- and end-of-year data), cooperative savings associations (interpolated linearly from semiannual data), as well as state savings branches, public city banks, credit partnerships, city banks, and savings and loan partnerships (all interpolated linearly from beginning- and end-of-year data), plus physical money. Physical money includes paper notes (monthly data), gold and silver coins in circulation (both interpolated linearly from beginning- and end-of-year data).
Sources: The Ministry of Finance (1900-1907a)

compliance with labour laws and managed disputes between workers and firms, were protective of workers' rights. However, in the years leading up to the revolution, factory inspectors simply did not have enough human resources to resolve all ongoing disputes (Pushkareva et al., 2011). Taken together, this evidence suggests that the financial crisis and banks' response to the crisis had indirect, yet real effects on workers by propping up large companies whilst limiting credit to smaller firms.

4.3.2. Recession and industry response

The financial crisis affected another key economic participant – heavy industry, which consisted of manufacturing, mining, chemical, and timber industries. The rapid industrialisation of the 1890s was characterized by the supply of heavy industrial products lagging behind demand. In 1900, supply outpaced demand for the first time (Gindin, 1996). As a result, Figure 4 shows that heavy industry went into recession in 1901-02, with output and revenue declines of 7.7 and 6.8 per cent, respectively.[77] Light industry, on the other hand, was unaffected.

The next set of figures traces the difficulties experienced by companies throughout the crisis. In Figure 5, I calculate the corporate bond risk premium for manufacturing, mining, and textile industries as the excess of current yield on corporate bonds over the highest-rated government security, the 4 percent Russian government bond of 1894. I collect the current yield based on monthly price and coupon data that I collected from the *Yearbooks* for 37 individual bonds. Figure 5 shows that the cost of borrowing for corporations in the bond market rose sharply. The figure also suggests that some companies faced low demand for their bond securities. Given that it was customary for industrial companies to use proceeds from bond issuance to cover operating expenses, rising bond risk premiums and the inability to sell their debt, put many industrial enterprises in an illiquid position (RGIA, 587, 56, 296, 10-11).

Figure 6 shows that foreign investments in corporate securities declined abruptly in 1901, netting only 7 million rubles, as opposed to 69 million rubles the year prior, putting additional funding pressures on companies. In subsequent years, foreign capital inflow only diminished, with net foreign investments turning negative in 1904.[78] Figure

[77] Industry output is calculated based on data from Borodkin (2011a, 2011b) and revenues are colledted from the *Yearbooks* of the Ministry of Finance.

[78] Calculated based on data from Ol (1925).

7 shows that key commodity inputs in heavy industry production experienced a dramatic price fall. In particular, the price of coal fell by 35.3 per cent between 1900 and 1903, oil by 57.3 per cent between 1900 and 1902, and cast iron and iron beams by 33.7 and 42.7

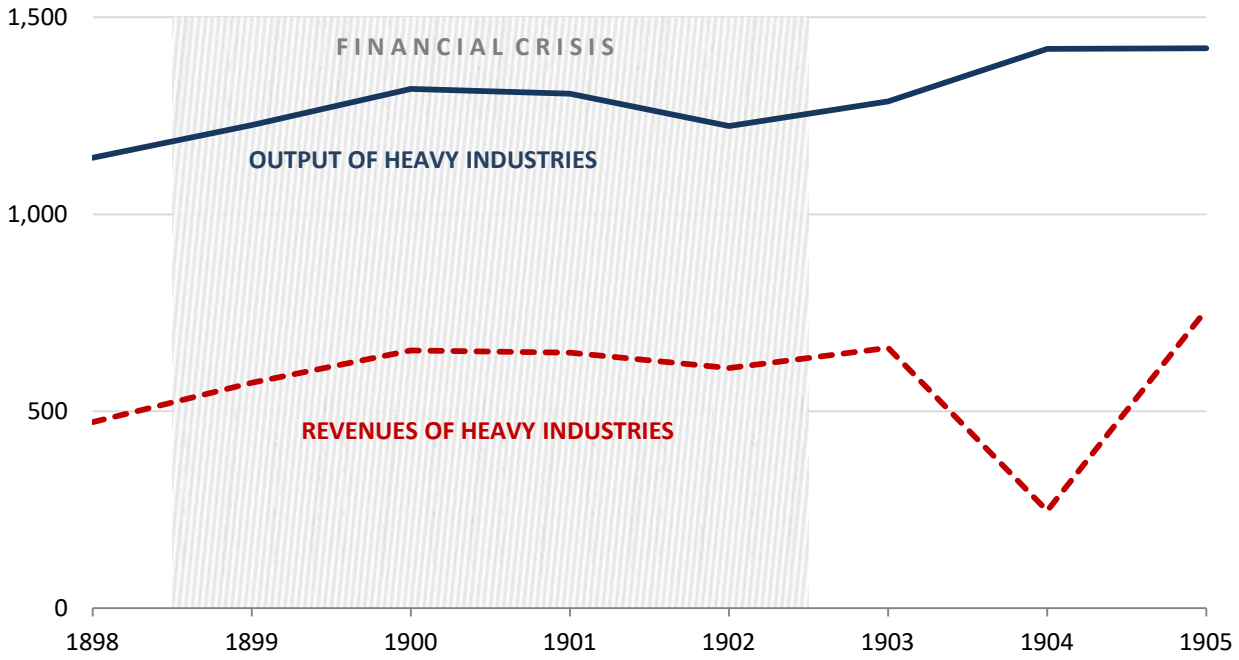

Figure 4. Annual monetary value of output and revenues of heavy industry (in millions of rubles), 1898-1905
Sources: Monetary value of output is from Borodkin (2011a, 2011b) and revenues are from the Ministry of Finance (1900-1907a)

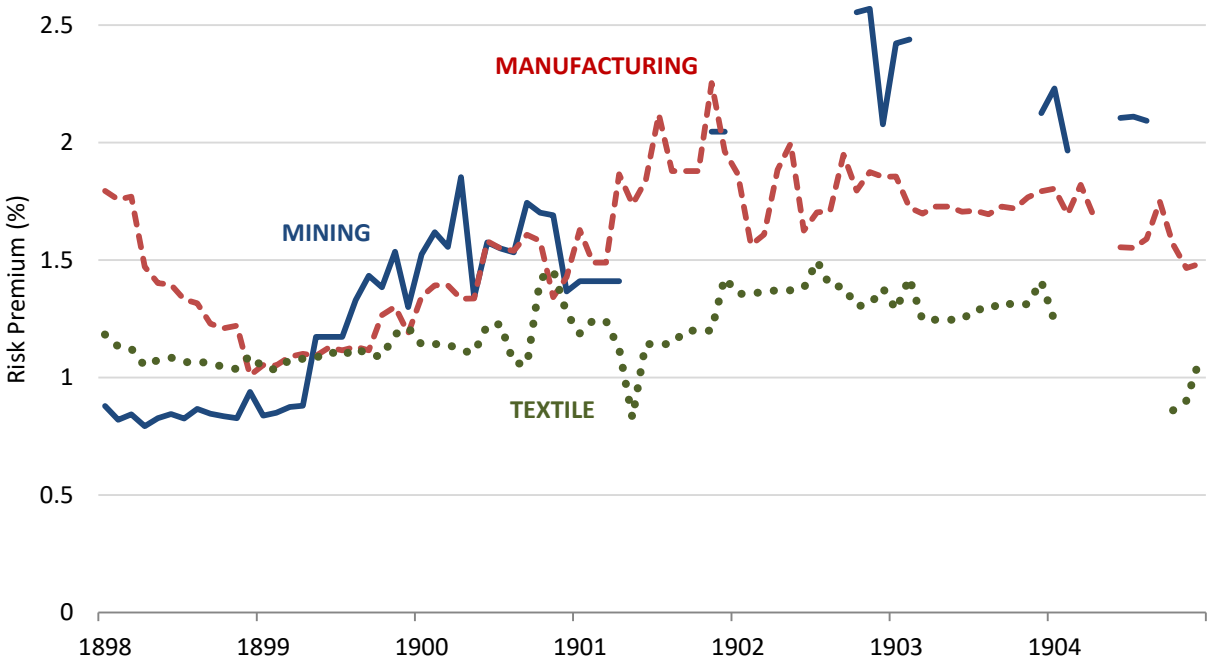

Figure 5. Monthly corporate bond risk premium by industry (in percent), 1898-1904
Notes: The corporate bond risk premium is the excess of current yield on corporate bonds of each of the three industries over the current yield of the highest-rated government security, the four percent Russian government bond of 1894. Current yield of each corporate bond is calculated based on price and coupon data of 37 individual bonds. Gaps in the series are due no trades in those months. Industry yield is the average yield of traded bonds in every month weighted by the outstanding amount of each bond.
Sources: Price and coupon data is from the Ministry of Finance (1900-1907a). The quantity of bonds outstanding is from Dmitriev-Mamonov (1903).

per cent, respectively, between 1899 and 1903.[79] Dramatic commodity declines were especially threatening to smaller companies. To maintain their profitability, heavy industrial companies responded by engaging in destructive price wars, which again reflected most negatively on smaller companies because they had least amount of capital reserves and bank banking (Shpolyanski, 1953). With larger companies outpacing the rest, workers' bargaining power was diminished, following the same dynamics described in the previous sub-section.

4.3.3. Fiscal distress and government response

The third economic participant directly affected by the crisis was the government. The biggest adverse shock to state finances came from abroad. To show that, I collect annual

[79] Calculated based on data from Borodkin (2011c).

data on foreign and domestic government debt outstanding from the *Yearbooks*. Figure 8 suggests that foreign investors nearly stopped purchasing government bonds with the onset of the crisis. Such bonds had previously been a major source for funding state procurement of industrial products. Figure 8 also shows that the net amount of railroad debt decreased by over 6 per cent between 1899 and 1903. Unable to find buyers abroad, the government pursued domestic investors, who purchased an additional 20.5 per cent of domestic debt between 1899 and 1903. Another stress on government finances came from the drop in grain exports in the first year of the crisis, leading to a negative trade balance of 56 million rubles, as compared to an average surplus of 106 million rubles over the previous two years (Valetov, 2017). An additional stress came from an especially poor harvest in 1901, the worst of its kind since the devastating famine of 1891-2 (Mikhailovsky, 1921).

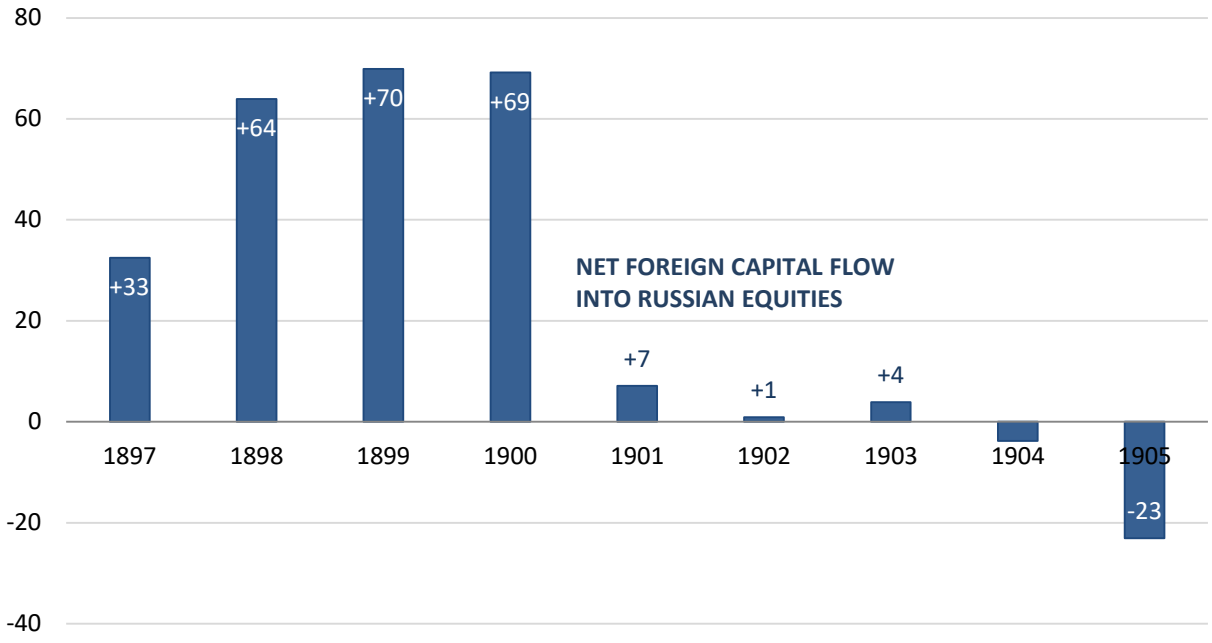

Figure 6. Annual net foreign equity investments in mining and manufacturing companies (in millions of rubles), 1898-1905
Sources: Ol (1925)

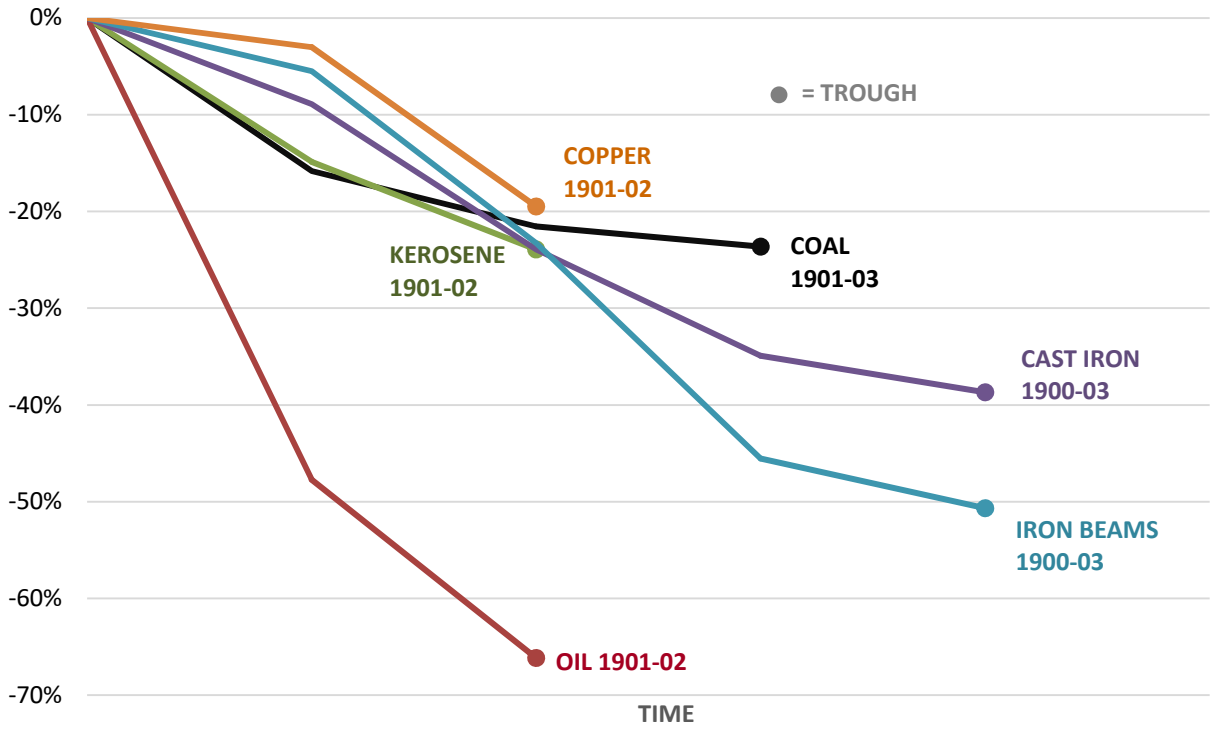

Figure 7. Prices of heavy industry products, fall from peak to trough at annual frequency (in percent)
Sources: Borodkin (2011c)

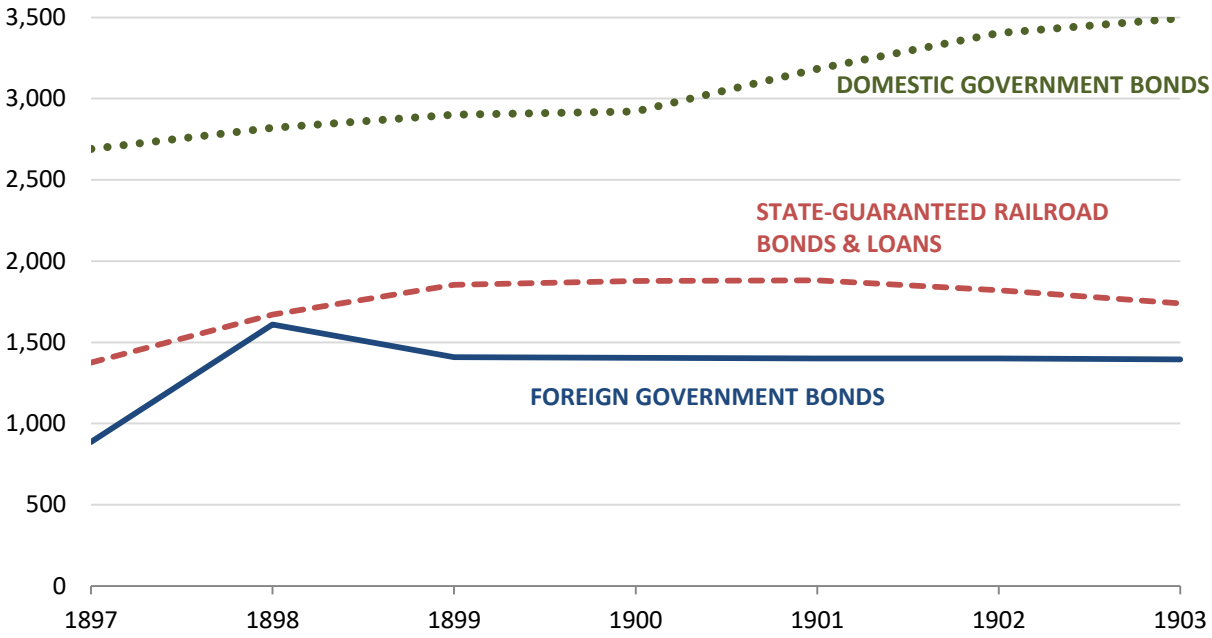

Figure 8. Annual foreign and domestic government debt outstanding (in millions of rubles), 1898-1903
Sources: The Ministry of Finance (1900-1907a)

To lessen the impact of the crisis on industry, the government implemented three programmes. Contrary to their stated intention, some of these programmes only prolonged the duration of the crisis. First, seeing the deadly consequences of price wars, in 1901 authorities set out to establish 'fair' and 'normal' profitability among industrial companies by attempting to maintain state procurement of industrial products at pre-crisis levels and at above market prices (Gindin, 2007, p. 70). Prior to the crisis, state procurement comprised over half of aggregate demand for heavy industrial products (Ozerov, 1905; Gindin, 1996). According to the Ministry of Finance, the purpose was to preserve industrial growth and 'avoid the need of reducing the number of workers' (Gindin, 1996, p. 80). Contemporary estimations point that the state was able to maintain its purchases on pre-crisis levels in 1899 and 1900. However, the reduction in foreign capital inflow forced the government to reduce procurement in 1901-02, which contributed to the recession in heavy industry over the same period (Gindin, 1996).

However, state procurement benefited only the companies that had been receiving state orders prior to the crisis (Gindin, 2007). Because state orders in the 1890s were typically large, to qualify for them a company had to have a sizable production capacity in the first place (Gindin, 1996). This meant that during the crisis mostly larger companies were able to obtain contracts from the state. This led to the strengthening of larger enterprises and the weakening of smaller ones.

The second industry assistance programme involved authorities openly encouraging industrial firms to collude and form cartels and syndicates instead of engaging in price wars. This policy was the polar opposite of the stance the Ministry of Finance had taken on in the 1890s, when it had pushed for intense market competition in order to make Russian industry more competitive on foreign markets (Gindin, 2007). In November 1901, in its official daily newspaper, *The Bulletin of Finance*, the Ministry of Finance openly put forward that '(i)f industrialists … would recognize it useful to join

efforts in seeking a way out of the existing situation, then they would not encounter obstacles to their endeavours from the Ministry of Finance' (Gindin, 2007, p. 74). The Ministry also noted that 'larger factories (we)re getting ahead' (Gindin, 2007, p. 74), and if that continued, only a very limited number of companies would survive. The choice was thus twofold: either organize a syndicate that would include all firms as its members 'or let (small and weak firms) perish', while letting remaining enterprises 'occupy a monopoly position' (Gindin, 2007, p. 74).

This policy did not quite work as intended because from late 1901 companies began colluding, but not all market players agreed to join in. Large companies that were receiving state procurement found it more profitable to stay away from these alliances (Shpolyanski, 1953). Fierce competition broke out between syndicated companies and the recipients of state orders. While the syndicates tended to limit production to drive prices upwards, the recipients leaned towards reducing their prices. These price wars typically ended in the late 1900s when either the recipients joined existing syndicates or the syndicates dissolved under the pressure from outsiders. In most cases, as state procurement diminished, the recipients were forced to unite with cartels (Shpolyanski, 1953).

The third government programme included direct lending to industry and purchasing of corporate bonds for which no private buyers were found. Although these programmes were large in size (State Bank, 1899-1903), they only benefited a limited number of firms as compared to 608 public, heavy industrial companies operating in 1902.[80] Cumulatively, the effect of the industry assistance was to distort market competition and create industrial winners and losers, who could then weight on the unprotected working class, instead of engaging in efficiency improvements to overcome the crisis in a level-playing-field competition.

[80] The number of firms is based on data from Dmitriev-Mamonov (1903).

4.4. Impact on workers

Having established the channels through which the financial crisis affected major economic participants – that is banks, industry, and the government – and having analyzed their immediate response to the crisis, this section turns to examining the way these parties affected another key member in the economy: industry workers.

4.4.1. Industry and workers

Figure 9 shows that in response to the crisis, heavy industrial companies downsized their labour force by an average of three per cent per year between 1901 and 1903.[81] Rising unemployment did not just hurt those who lost their jobs. It also affected the workers who were able to retain their jobs because of the downward pressure on wages given that companies now had a wider pool of skilled employees to choose from. More importantly, as analyzed below, firms in all probability intensified the exploitation of

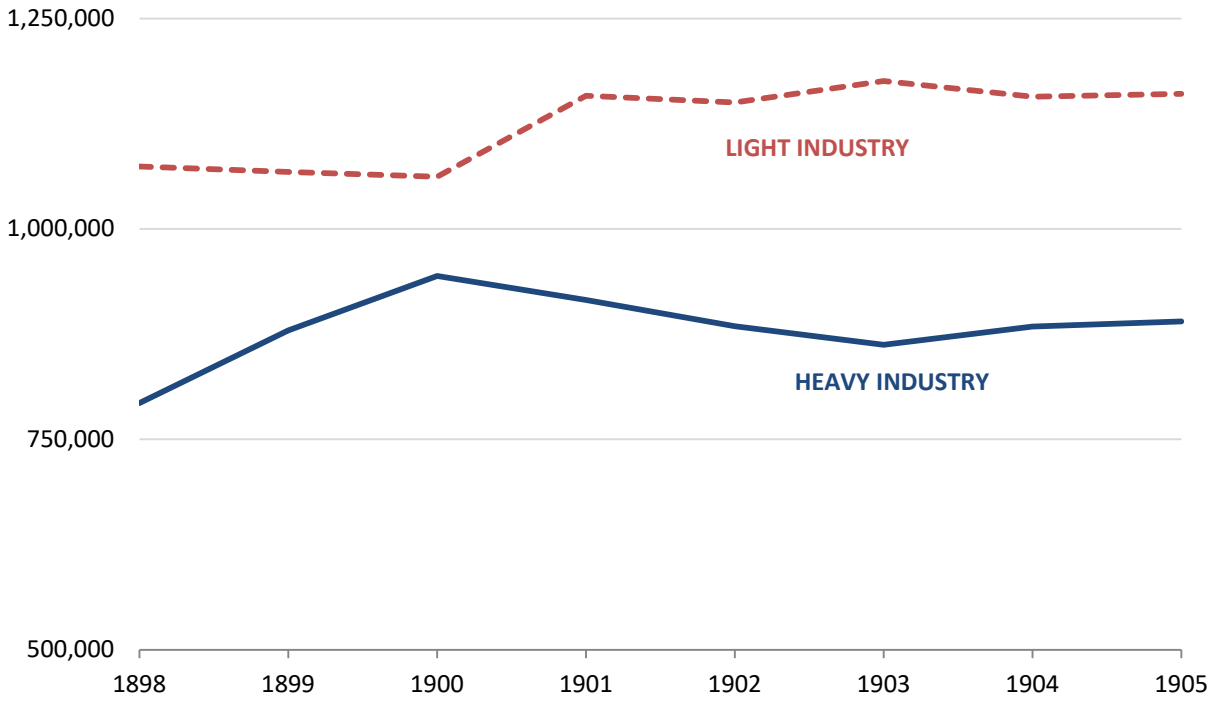

Figure 9. Annual number of workers at industrial companies, 1898-1905
Sources: Borodkin (2011a, 2011b)

[81] Calculated based on data from Borodkin (2011a, 2011b).

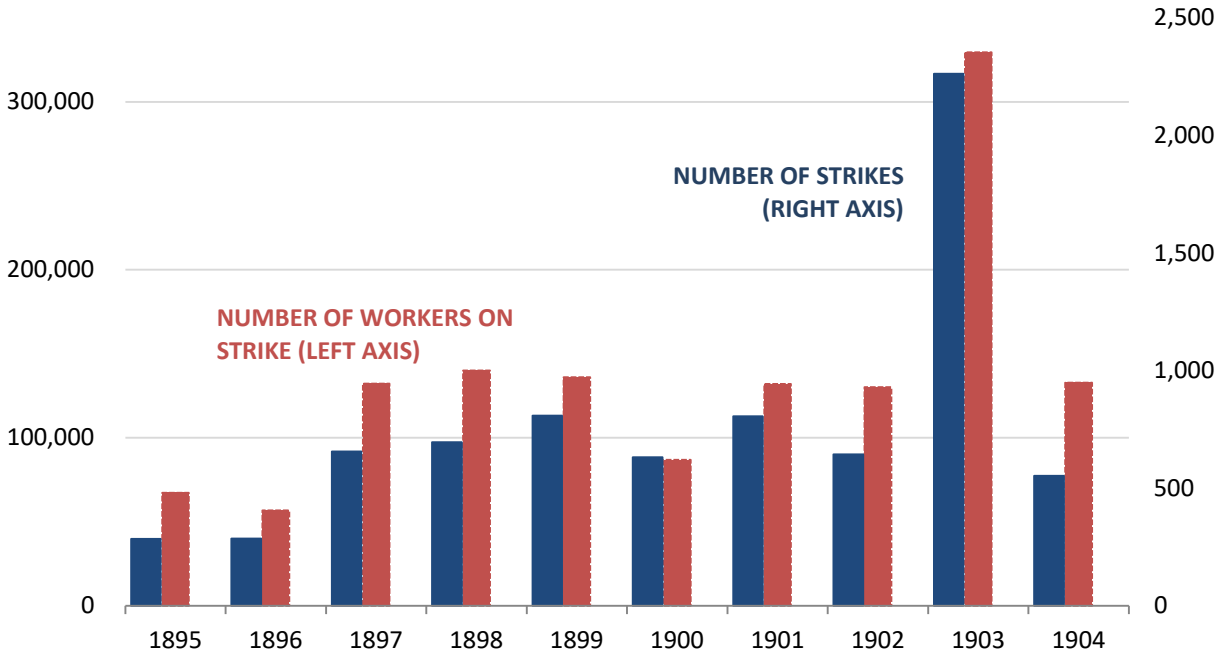

Figure 10. Annual number of strikes organized by workers, 1895-1904
Sources: Pushkareva et al. (2011)

workers. I define exploitation as either the increase in work intensity given the same number of hours worked or additional overtime work with no change in the work pace. The overarching evidence for this comes from the upward trend in the number of strikes that workers organized following the financial crisis. Specifically, a labour strike was the refusal to work because of a disagreement over working conditions, including pay.

Figure 10 shows that workers had been organizing strikes in large numbers since 1895. The financial crisis itself did not coincide with a greater incidence of strikes. It was only in 1903, the year right after the end of the recession in heavy industry, that the number of strikes spiked to unprecedented levels, rising two-and-a-half times from the previous year.[82] In 1903, strikes covered 65 out of 78 provinces, involving workers of nearly all vocations (Korelin et al., 2005). In 1904, Russia went to war with Japan, and the number of strikes fell to historical averages. That was because the government, in collaboration with company managers, made sure that most dissatisfied and rebellious workers were sent to the war front. Vacancies were replaced with newly-recruited

[82] Calculated based on data from Pushkareva et al. (2011).

peasants from the countryside who were too new to the scene to engage in protest immediately (Pushkareva et al., 2008). Despite these formidable obstacles, the first Russian revolution erupted in January 1905.

Two additional facts suggest that worker hardships were on the rise even before the escalation in the number of strikes in 1903 and before the end of the financial crisis in 1902. Figure 11 shows that between 1900 and 1901 of the number of workers who expressed a work-related complaint nearly doubled, from about 24,000 to almost 48,000.[83] This suggests that worker discontent rose substantially amidst the crisis; it was just expressed in a more civil way. Secondly, in October 1902, the Finance Minister, Sergei Witte, expressed his view in a conversation with the Minister of Internal Affairs

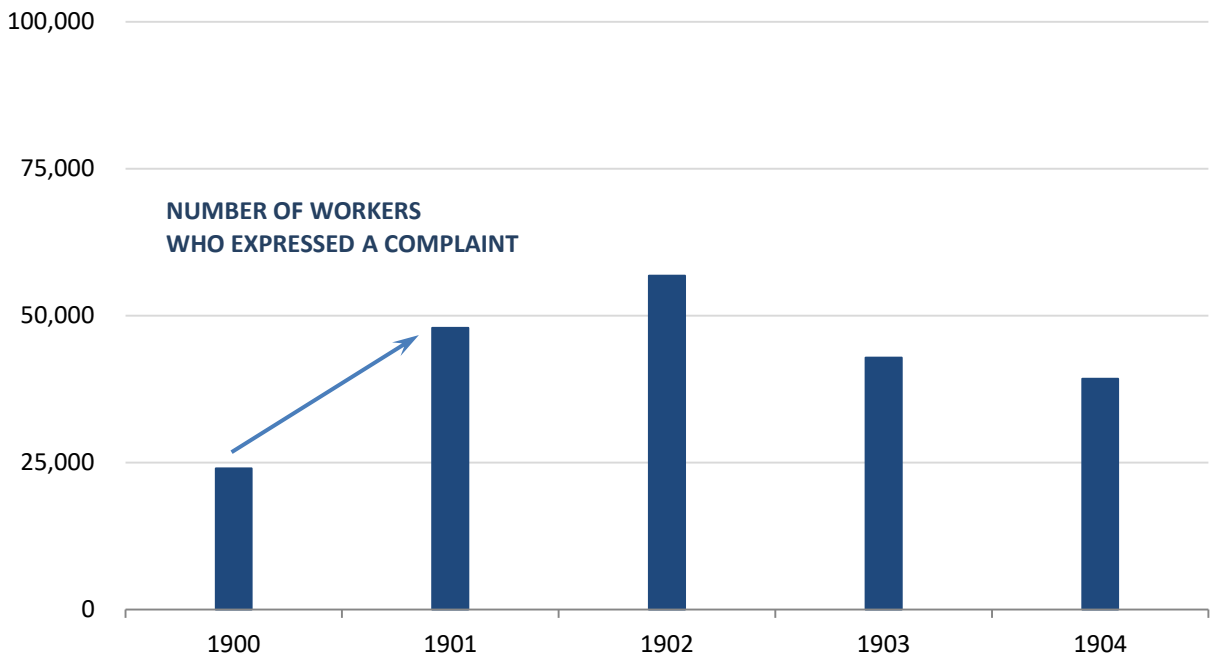

Figure 11. Annual number of workers who expressed a complaint, 1900-1904
Sources: Pushkareva et al. (2011)

[83] Calculated based on data from Pushkareva et al. (2011).

that the worker movement reached such dangerous levels that it would be impossible to stop it by repressive measures (Korelin et al., 2005). The Finance Minister Witte was one of the most informed individuals in the country. Over 200 factory inspectors, introduced above, reported to him. Wageworker dissatisfaction must have notably deteriorated for the Finance Minister to pick up the heating up in social turmoil even before it physically manifested itself in the form of widespread strikes in 1903.

The next piece of evidence speaks more directly to the possible exploitation of workers. Indicative of that is the ratio of the number of work-related injuries and deaths at all mining plants and coal, iron, manganese, and copper mines over the number of workers at these facilities, which covered over 72 per cent of the entire heavy industry employment in 1899.[84] If in 1897, 1.9 per cent of all workers employed at these plants and mines suffered from work-related causalities, then in the first year of the crisis in 1899, 3.5 per cent were affected. In 1902, an unprecedented 33,613 workers, or 5.4 per cent of the total were hurt. Taking a closer look at Southern coal mines, if in 1897, 0.7 workers got injured or killed for every 16.38 thousand tonnes of coal and anthracite extracted, then in 1901 that number soared to 5.4 workers and in 1903 to 8.2 workers.[85] In a matter of two years, Southern coal mines became over six times more dangerous for those who worked in them.

The next set of evidence offers another way to examine whether working conditions were deteriorating. The share of strikes in which workers in mining industries demanded improvements in work conditions, namely in the quality of machines and tools used and social benefits received, increased from an average of 7.5 per cent in the period 1895-99 to 9.4 per cent in 1900-04. In the manufacturing industry, this share increased by an even greater amount: from a mean of 5.7 per cent in 1895-99, to 9.8 per

[84] Employment is calculated based on data from Borodkin (2009a, 2011a, 2011b).

[85] Calculated based on data from Borodkin (2009b).

cent in 1900-04 (Shilnikova, 2012). These changes in worker demands were partly due to the fact that workers were becoming increasingly aware of their unacceptable working conditions. Illegal political parties played an important role in disseminating information and assisting workers in raising their awareness (Pushkareva et. al., 2005). However, as shown in Figure 12, the percentage of strikes in the manufacturing industry organized under direct influence of illegal political parties declined from about 46 per cent in 1900 to 16 per cent in 1904, while the number of strikes kept on rising.[86] This suggests that although workers were indeed becoming more conscious of their poor working conditions, other factors were responsible for worker discontent, with worsening working conditions likely being one of the driving factors.

This next fragment of data examines worker exploitation from the point of view of company financials, which I collected from the *Yearbooks*. Figure 13 indicates that manufacturing and chemical companies were able to maintain their profitability, as measured by the profit margin, or the ratio of net income to revenues, throughout the entire crisis despite declining sales. In 1903, when the number of strikes rose 2.5 times and workers skipped many days from work, manufacturers made an extra 0.9 per cent in profit margins versus the prior year. In 1904, the year when Japan entered the war against Russia and sales at heavy industries plummeted by 62.5 per cent, all heavy industries – that is manufacturing, mining, and chemical – doubled or tripled their profit margins. Industrialists made steady returns in all circumstances: economic upturns and downturns, diverging performance of larger versus smaller companies, and periods of social unrest and war. To maintain such stellar bottom-line performance, companies had to skilfully manage the costs of raw materials, the use of machinery, and/or the labour force. It is probably fair to suggest that the steady profitability was achieved not solely thanks to proficient managerial skills.

[86] Calculated based on data from Pushkareva et al. (2011).

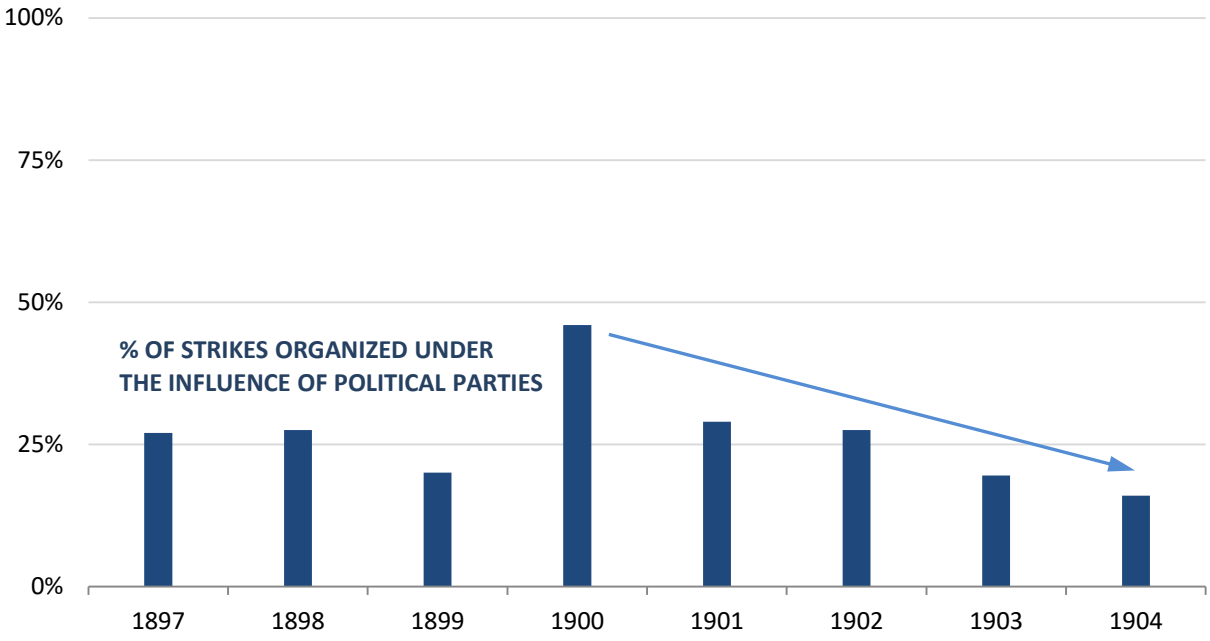

Figure 12. Influence of political parties at manufacturing firms, 1898-1904
Sources: Pushkareva et al. (2011)

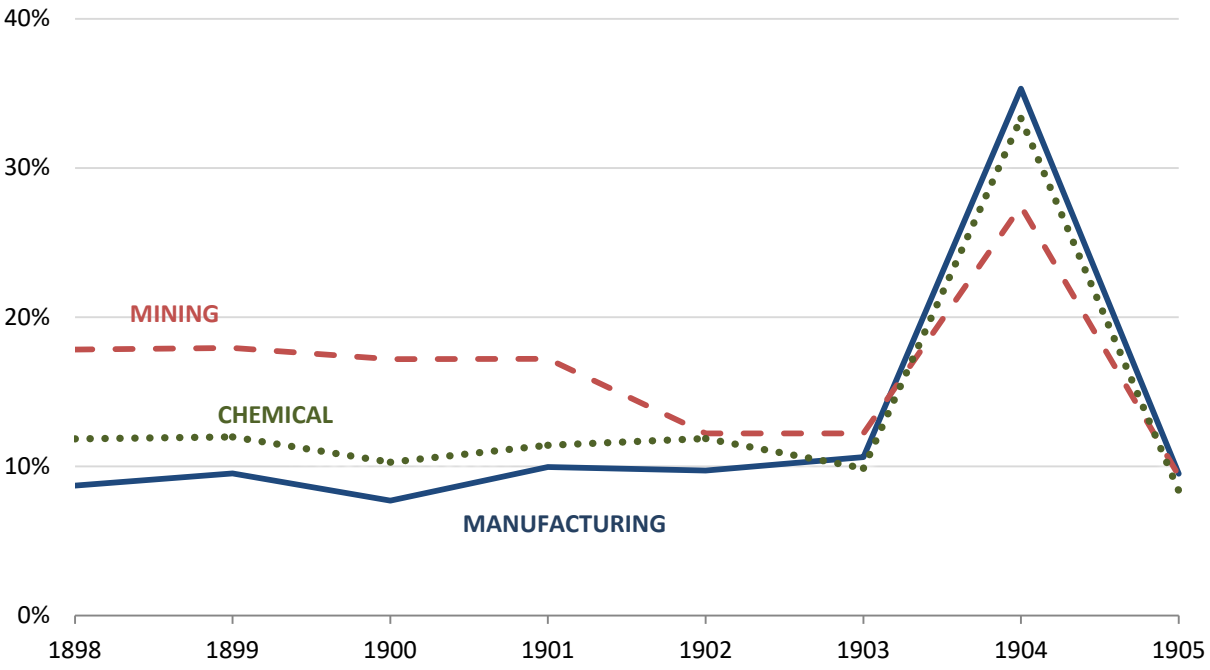

Figure 13. Annual heavy industry profit margins (in percent), 1898-1905
Notes: Profit margin is net income divided by revenues.
Sources: Net income and revenues are from the Ministry of Finance (1900-1907a)

This next set of data examines non-financial characteristics of the ferrous metallurgical industry – that is the metallurgy of iron and its alloys – which employed over 31 per cent of all heavy industry workers in 1899.[87] Figure 14 plots the number of workers, cumulative horse power of engines available for use, and output produced in tones by this industry. Recall that 1903 was distinguished by a surge in worker unrest and 1904 by a war with Japan and disastrous corporate sales. During these two years, the number of workers in the ferrous metallurgy stayed virtually unchanged, horse power declined by nearly 9 per cent, while output rose by 16 per cent.[88] A natural question to ask based on these diverging trends is: did workers become more productive or more exploited over this period? It is known that during the financial crisis, companies introduced higher-powered and more efficient steam and internal combustion engines (Kafengauz, 1994), so that might account for some increase in productivity. However, fluctuations in output, as in the five per cent increase over 1903-04, could also be indicative of overtime work. In fact, during the war with Japan, overtime work became a necessity at companies that fulfilled rushed military orders (Korelin et al., 2005). Overall, given declining horse power and unchanged labour force, increasing output suggests that the ferrous metallurgical industry was taking advantage of workers by shifting from capital intensive to labour intensive production. Furthermore, the fact that firms had an opportunity to shift from capital to labour inputs suggests that there were few incentives for companies to seek a way out of the recession via efficiency improvements (Gefter, 1953). Indeed, both theory and empirical evidence indicates that monopolistic entities are poor innovators (Hicks, 1935; Arrow; 1962).

The above evidence on the rise in the number of strikes, worker complaints, demands for better working conditions, and work-related casualties, as well as on the

[87] Employment is calculated based on data from Borodkin (2011a, 2011b).

[88] Calculated based on data from Borodkin (2011b).

increase in corporate profitability despite collapsing sales and on the increase in output despite declining horse power, all suggest that industry's response to the crisis transferred a good portion of their burden to the working class.

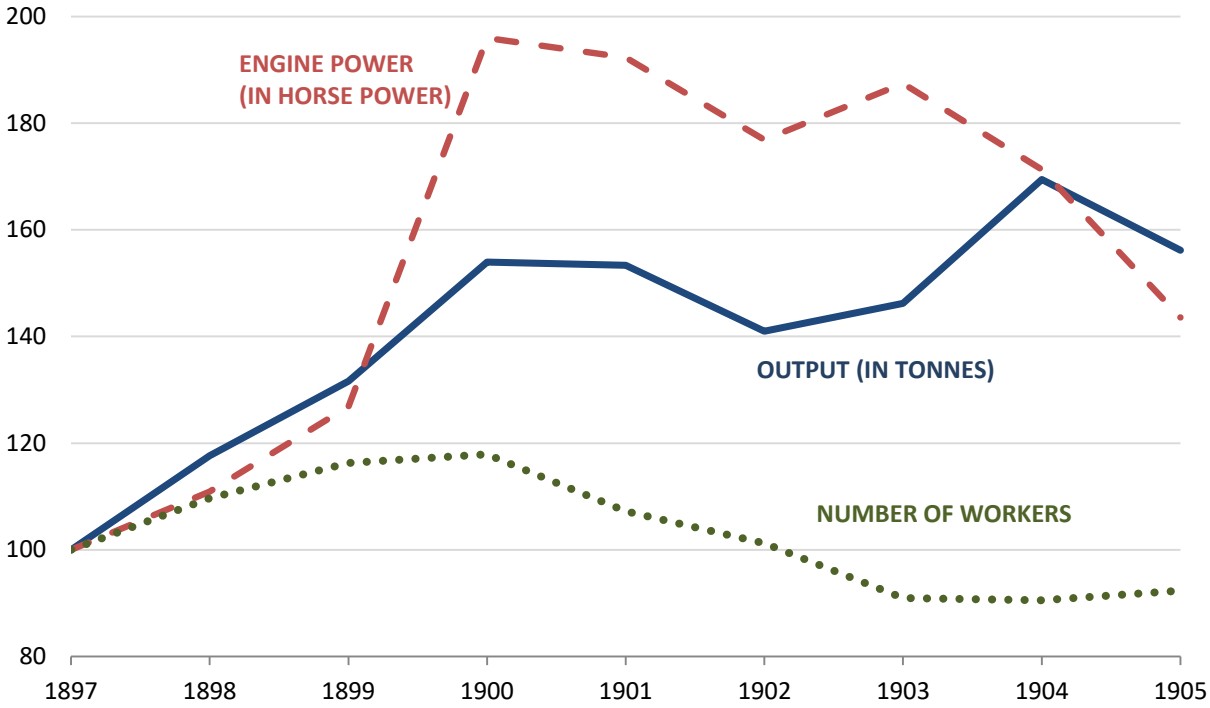

Figure 14. Annual physical output, machine power, and the number of workers in the ferrous metallurgical industry (index 1898 = 100), 1898-1905
Sources: Borodkin (2011b)

4.4.2. Government and workers

Another economic participant that had a direct impact on workers' wellbeing was the government. In response to the failure to find foreign buyers for government bonds, authorities shifted part of the budget shortfall onto workers by imposing progressively higher taxes, which I gathered from publications titled *Government Revenues and Expenditures*. Taxes collected from liquor sales increased by an astonishing 35 per cent between 1900 and 1904. Indirect taxes on daily consumer products, like sugar, spiked by 26 per cent over the same period. Although workers' real wages outpaced inflation by 5 per cent over this period (Strumilin, 1966), what is important is that the government purposely chose to levy higher taxes on most basic consumer needs, when many workers did not even have enough money to maintain adequate nutrition (Kirjanov, 1979).

Compare this to the favourable terms on which companies were treated. For that, I gathered corporate incomes taxes from *Government Revenues and Expenditures.* Figure 15 reveals that the corporate income taxes collected from public and private companies increased by a much smaller extent – just 14 per cent over this period. The corporate taxes were also smaller in absolute terms: 54.1 million rubles in 1899 as opposed 463.4 million rubles in indirect and liquor taxes.

The government then channelled taxpayer money to the assistance of industry. As described above, authorities aimed at maintaining procurement of industrial products on pre-crisis levels, predominantly financing these expenditures by raising indirect and liquor taxes and selling government debt domestically. The State Bank, a quasi-central bank of Russia, lent directly to enterprises and acquired corporate bonds by drawing from the Treasury's account with the State Bank (State Bank, 1900). Finally, state savings branches, by far the most popular state-owned financial institutions for making deposits among the general public, used public money to purchase 110 million rubles of railroad bonds in 1901-02 (Gindin, 1950).

The result of the assistance to industry was a distributional effect in the form of an income transfer from regular taxpayers to capitalists (Gefter, 1955). Figure 16 traces the flow of funds from taxpayers to capitalists between 1900 and 1905, the only period there are data available for comparison. To construct this figure, I used both primary and secondary sources. Namely, data on taxes, government revenues and capital gains on investments, I obtained from *Government Revenues and Expenditures*. Corporate net income and revenues are from the *Yearbooks*. Worker wages are from Pushkareva et al. (2011). Physical output and the number of workers at mining industry are from Borodkin (2011a).

Figure 15. Corporate income tax and indirect and liquor taxes (index 1900 = 100), 1900-1905
Notes: Liquor taxes include indirect taxes on liquor and taxes received by the government monopoly on the sale of liquor. Indirect taxes include taxes on tobacco, sugar, and matches.
Sources: All taxes are from the Ministry of Finance (1899-1906b)

Figure 16 shows that industrialists fared well at the expense of workers. Between 1900 and 1904, the increase in liquor and indirect taxes of 28.5 per cent, which most heavy fell on the lower classes, outpaced both the increase in corporate net income of 25.9 per cent and corporate revenues of 19.1 per cent. Investors too fared well. Capital gains on securities owned, which were mostly due to dividends, increased by 23.1 per cent over the same time period.

Figure 16 also reveals that after having benefited from government assistance, industrialists did not pass a fair share of profits to workers. Productivity among the mining industry, calculated as industries' physical output per the number of workers, rose by 24.2 per cent; whereas, workers' wages lagged noticeably behind, increasing by

only 10.9 per cent.[89] The redistribution of income from the lower classes to industrialists and investors only contributed to depressing consumer demand for industrial products, like the use of passenger trains, thus prolonging the crisis.

The result of workers' incomes falling behind was stagnant wealth. Studying data on the aforementioned state savings branches, Lenin (1963) concluded that in 1899 only 8.3 per cent of all workers had the means to make a deposit. The working class ranked last as measured by the amount of savings in rubles per a depository account, without counting soldiers whose monetary needs were taken care of by the state. Even domestic workers with 143 rubles per account had more savings than industry workers with 136 rubles per account (Lenin, 1963). Moreover, more than a third of workers had a liquid net worth of 25 rubles or less, which was equivalent to 1.6 months of an average worker's pay (Ministry of Finance, 1902a).[90] Between 1899 and 1904, workers' wealth was virtually unchanged, rising only slightly from 136 to 138 rubles per account in 1904 (Ministry of Finance, 1902-1907a).

[89] To ensure that this estimation is conservative, I assume that the number of hours worked per worker stayed constant over the years. Due to the lack of data on physical output for the manufacturing industry, it is not possible to estimate its productivity.

[90] An average worker pay was 15.6 roubles per month in 1900 (Pushkareva et al., 2011).

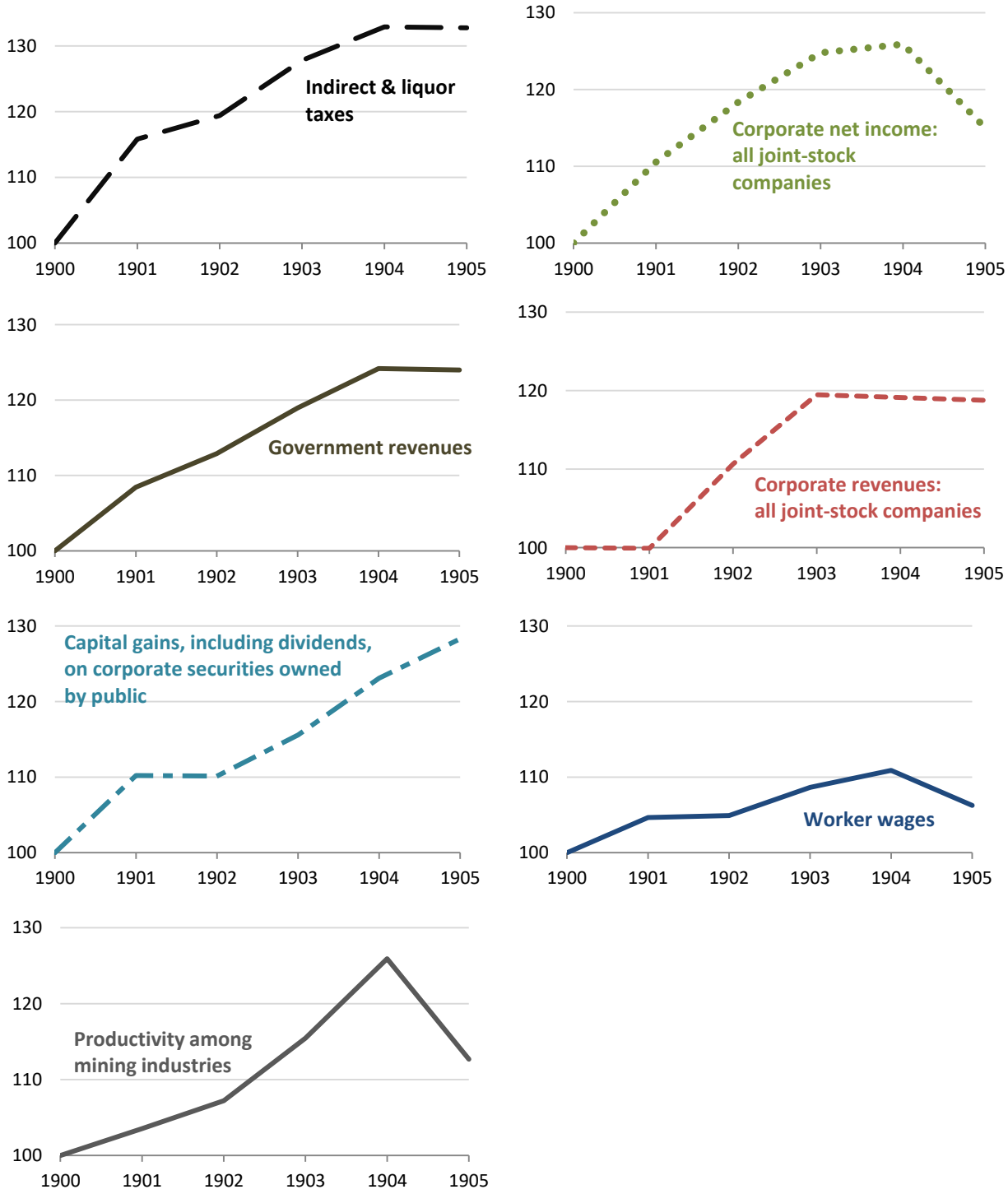

Figure 16. Financial conditions of key economic groups (index 1900 = 100), 1900-1905
Notes: Liquor taxes include indirect taxes on liquor and taxes received by the government monopoly on the sale of liquor. Indirect taxes include taxes on tobacco, sugar, and matches.
Capital gains are calculated as taxes collected from corporate securities owned by public divided by five percent, a flat capital gains tax effective since 1885 (Complete Collection of Laws, 1885).
Productivity among mining industries is calculated as the change in industries physical output per the number of workers. To ensure that the estimation is conservative, I assume that the number of hours worked per worker stayed constant over the years. Mining industries include coal, iron ore, copper, oil, manganese, gray pyrite, silver-lead, zinc ore, chromium ore, asbestos, salt, gold, platinum, and peat; and do not include the coke industry, due to the lack of data, and which represented 6.4 percent of the aggregate monetary output of mining industries.
Worker wages are nominal.
Sources: All taxes, government revenues, and taxes on capital gains are from the Ministry of Finance (1899-1906b). Corporate net income and revenues are from the Ministry of Finance (1900-1907a). Worker wages are from Pushkareva et al. (2011). Physical output and the number of workers at mining industries are from Borodkin (2011a).

4.5. Conclusions

The mainstream literature has established that financial crises directly reduce households' income and wealth. Deteriorating material conditions of households then cause discontent and social unrest. The case of Russia in the period 1899 to 1905 offers support to an alternative view. In particular, this chapter finds that the response to the crisis by the government and industry transferred income and wealth from ordinary workers to capitalists. The recipients of transfers profited during the recovery, whereas workers' material conditions stagnated. The evidence also suggests that industry forced the labour force to either work longer hours or more intensively, thus worsening their physical well-being. From the extant literature we know that poor working and living conditions were the central reason behind the occurrence of labour strikes. With this fact in mind, this chapter's findings suggest that the inequitable sharing of crisis-induced losses among key economic participants appears to have contributed to the occurrence of strikes.

If policy-makers take the side of the mainstream view, then their focus would predictably be on stabilizing the banking system, non-bank financial institutions, and financial markets, and then letting free markets determine the outcomes. If, on the other hand, policy-makers take the view that financial redistributions are not only crisis-made, but also occur because of the response to the crisis, then restoring financial system stability might not be enough to prevent social upheaval and political fallouts.

My findings open up an avenue for future research. Using micro-level data, future work could test empirically whether worker unrest was driven by crisis-induced economic shocks or by the response to these shocks. For that, scholars could use available data on company financial and non-financial characteristics as well as records on the occurrence and intensity of labour strikes at each company.

CHAPTER 5

Conclusion

5.1. Overview of chapters

In Chapter 2, I ask whether industrial policies can lead to bank distress. In the 1890s, the Russian Empire was undergoing rapid state-led industrialisation. Growth was propelled by foreign capital inflow into national debt and by state procurement of private sector industrial output. Concurrently, state policies incentivised, although did not compel, commercial banks to finance industry. In 1899, the inflow of foreign capital fell sharply, initiating a financial crisis. Based on new historical data, I find that the banks that experienced greater distress in the crisis had more personal connections to government officials who were close to the epicentre of policymaking. Additionally, the banks that suffered greater distress had more personal ties to companies that had been highly stimulated by state policies to expand production. Taken together, these two findings point to a destabilising impact of national development policies on bank performance.

In Chapter 3, I document that, when faced with a systemic financial crisis in 1899, the Russian State Bank went beyond the classical lender of last resort policy and implemented a multifaceted approach to crisis containment. Based on financial statement data and archival records on policy decisions, this chapter analyses the rescue operations and their effect. I find that the multifaceted approach was successful in maintaining price, employment, and financial stability. The evidence also suggests that the State Bank's crisis response was identical to the types of policies employed over a century later by the Federal Reserve during the 2007-09 financial crisis.

In Chapter 4, I ask through what channels financial crises can lead to social unrest. This chapter examines the period between a major financial crisis that began in Russia in 1899 and the Russian Revolution of 1905. Based on new aggregate-level data

and narrative evidence, this chapter finds that in response to the crisis, the Russian government and industry transferred income and wealth from ordinary workers to industrialists and investors. The recipients of transfers weathered the crisis well and profited during the recovery, whereas workers' wages and wealth stagnated. The evidence also suggests that industry forced the labour force to either work longer hours or more intensively. Ultimately, the distributional effect of the response to the crisis appears to have contributed to the occurrence of labour strikes.

One limitation of my research is that some of my findings are based on statistical correlations rather than on econometric analysis that is able disentangle cause from effect. Instead, I draw causal links using narrative and historical evidence. Like economists, historians strive to understand causal connections. However, they do so by 'inferring causality from detailed context (and from) the plausibility of alternative narratives' (Morck & Yeung, 2011, p. 1). While Chapter 4, in particular, may benefit from a regression analysis, I stand behind my current conclusions due to the preponderance of collected evidence.

In fact, in future research, I plan to build on Chapter 4 by using micro-level data to investigate empirically two questions. First, whether the companies that experienced greater distress as the result of the 1899-1902 financial crisis faced a greater incidence of strikes in the years leading up to the 1905 revolution. Second, whether the companies that passed a smaller share of their profits to employees and reinvested less into their businesses faced a greater incidence of strikes. Given the findings in Chapter 4, I expect that businesses passed their financial difficulties onto workers, who then retaliated with strikes. For this future research, I would use available data on company financial performance and on the occurrence of 6,349 strikes between 1899 and 1904 (Pushkareva et al, 2011).

5.2. Lessons for today

Although my work is historical in nature, it is possible to draw some broad lessons from my findings for today. One lesson from Chapter 2, which is on the role of the government in bank distress, is that policy-makers would benefit from paying special attention, not only to banking regulation and supervision, but also to the incentives they give to banks. For example, in the early and mid-2000s, some investment banks reoriented their business strategies towards mortgage finance after government-sponsored enterprises, like Freddie Mac and Fannie Mae, showed the bankers how profitable subprime finance was.

Modern policy-makers put a lot of emphasis on fine-tuning macro-prudential and micro-prudential regulation. The Chicago Fed, for instance, tracks 105 indicators of financial activity and 85 indicators of economic activity (FRB of Chicago, n.d.a, n.d.b). Yet, even a well-capitalised bank can incur significant losses and fail after making bad credit risk investments. If many banks incur losses this way, a banking crisis might follow. A practical lesson from Chapter 2 is that the government might consider monitoring not only financial and economic conditions, but also the impact of its own actions and nation-wide policies on market players.

Chapter 3, which is on the State Bank's rescue operations, brings to mind the famous quote by John Maynard Keynes that '(p)ractical men, who believe themselves to be quite except from any intellectual influence, are usually the slaves of some defunct economist' (1936, p. 383). Central bankers' responses to financial crises in Europe and in the U.S. in the late 19th and early 20th centuries are stark examples of Keynes' insight occurring in real life. Bagehotian principles of liquidity provision, the real bills doctrine, and the liquidationist theory were some of the concepts that central bankers of the time followed closely. Ironically, even present-day heated debates among central bankers

revolve around whether it would be appropriate to respond to a future financial crisis following the rules of a journalist and essayist who wrote them nearly 150 years ago.

One lesson that Chapter 3 offers to modern policy-makers is that Bagehot's dictum of the lender-of-last-resort needs modification. Modern financial systems have gained much additional complexity. It is time for authorities to detach themselves from the intellectual influence of Walter Bagehot and ask themselves with all seriousness whether they want to provide real help in a time of crisis or not.

With regards to Chapter 4 on the response to the crisis having distributional consequences, a lesson for policy-makers is that they should not forget that the participants in the financial system constitute only one group of people in the economy. There are also businesses and households. Helping one group to recover from a crisis at the expense of other groups might lead to unintended social and political consequences. A successful resolution of a financial crisis is no longer just about making sure that credit flows to the economy.

Finally, the period between the early 1890s and 1905 in Russia in its core elements is reminiscent of the events that took place in the 2000s and the early 2010s in the United States. Despite its banality, the overall lesson of my thesis to policy-makers of today is that '(t)hose who cannot remember the past are condemned to repeat it' (Santayana, 1905, p. 284).

5.3. Counterfactual

Ferguson (2011) advises historians to learn from past events not just by describing and analysing them, but also by asking what could have been done differently in that moment of history. Following his advice, in this final section, I pose a counterfactual: what could the Minister of Finance Sergei Witte have done differently in 1890s to avoid the crisis of 1899-1902 and the Revolution of 1905, given the reality surrounding him?

First, were the rapid industrialisation policies of the 1890s a mistake? Taken as a whole, I do not believe so. Although Witte understood the value of a modernised agricultural sector and a motivated peasant population (Witte, 1904), he was not successful in making any meaningful changes to peasants' lives because of the immense opposition of the landed nobility in the Government Senate, whom the Czar supported (Korelin et al., 2005). This meant that his real power was mostly confined to the realm of banking, industry, and the stock exchange. Indeed, before the financial crisis, Witte emphasised weak corporate and stock exchange regulation as the recipe for a future disaster (Witte, 1898a). He also hoped that Russia would industrialise before there was a credit shortage in Europe.

Witte's first mistake was perhaps that he did not devote enough personal political power to strengthening corporate law. The extent to which he would have succeeded in this realm is unknown. However, any additional corporate regulation would have potentially made the crisis less severe by curtailing the establishment of speculative enterprises. In particular, the law of 1901, which prohibited banks' executive board members from serving on corporations' boards, if introduced earlier, would have limited the passage of privileged information between heavy industry and banks, and hence made bankers more cautious about the future prospects of firms in heavy industry.

Strengthening banking regulation and imposing some level of personal liability on bankers would, in my opinion, have done little to change the unfolding situation because the bankers seemed to genuinely believe in the soundness of their loans to and investment in industry. Moreover, bankers were clearly operating under the assumption that if anything went wrong, the government would support the industrial sector. Another policy Witte could have attempted to do was to impose additional oversight on the companies receiving state procurement orders. Witte likely could have simply asked the Czar to approve such a law, bypassing the Government Senate altogether. Companies

receiving state procurement were known for managing their costs poorly. This targeted law might have done away with a lot of inefficiency in heavy industry. Indeed, the law of 1902 gave the Ministry of Finance some power to determine whether shares of a particular company would be allowed to float on stock exchanges (Complete Collection of Laws, 1902).

Turning to the crisis period, the question of interest is: was the crisis response that successful after all? I believe there is one area where Witte could have made a big difference to the way the events unfolded. As foreign capital stopped flowing into Russia in 1899, Witte was 'pretending' to foreign financiers over the next few years that Russia's coffers were plentiful and that no additional funding was needed (Siegel, 2015). Witte abstained from foreign borrowing because he believed borrowing on unfavourable terms would damage Russia's credit (Siegel, 2015). In reality, heavy industry went into recession between 1901 and 1902 partially, if not mostly, because of the decline in state procurement, itself due to the lack of fiscal resources.

During the crisis, there was a chance for a loan from Germany and for a deal with American bankers, albeit on unacceptable terms for Witte (Siegel, 2015). I believe Witte should have grasped all of those funding opportunities and made sure that heavy industry kept on producing at a steady level. Since the government was the main buyer of industrial products, Witte could have used his influence to force industry into becoming more competitive, and thus helped it to come out of the crisis stronger than before, rather than allowing companies to form inefficient cartels and syndicates.

Finally, what could have been done to avoid the Revolution of 1905? The revolution was significant not only because of the partial victory of the working class, but also because it put Russia on the path of chaos, wars, ever-present fear for being designated as 'enemy of the state', and the pure personal drama that probably did not bypass a single family who lived in those years. This long epoch lasted for nearly 50

years, until Stalin's death in 1953. What could have Witte done to place Russia on a more socially-stable trajectory?

Witte might have expanded the number of factory inspectors to ensure that existing corporate and labour laws were enforced. The problem was not that there were no labour laws; rather, the problem was that existing laws, even if they were insufficient, were not stringently enforced. For example, in many cases, the truth was on a worker's side, but factory inspectors would abstain from fully penalizing the company for breaking the labour law (Kirjanov, 1979).

Witte's ultimate goal was to preserve industrial activity and the political order, not individual workplaces. This became especially evident during the Revolution of 1905, when Witte supported the ruthless suppression of any uprisings against the Czarist regime (Korelin & Stepanov, 1998). When the political order was not at stake, Witte cared deeply about regular people and fought, perhaps like no one else in the government, for their betterment (Korelin & Stepanov, 1998). It was, after all, Witte who wrote and then convinced the Czar to sign the October Manifesto in 1905 (Vvedensky, 1952). Witte's ultimate plan was to create world-class industries, the prosperity of which would trickle-down to workers. Meanwhile, impoverished workers could not wait until conditions would get better for them.

CHAPTER 6

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